PAGE 6 PUBLISHING's

NEW ATARI USER

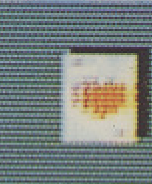
Issue 47 £1.95
December/January



XL/XE

ACE DRIBBLER AND THE ROADHOGS

A zany knockabout game



RECORDING SOUND FROM YOUR ATARI

TRYIING OUT COMMS FOR THE FIRST TIME

1020 PLOTTER DUMP



NEW SOFTWARE BARGAINS
LOTS MORE

NAVIGATION WITH FS2

SANTA'S REVENGE - Type-in

ST FILE

PUBLIC DOMAIN
GAMES ... GAMES ...
GAMES! THE BEST!

FUN SCHOOL 3 - REVIEW AND READERS OFFER

NEODESK 3 - BETTER THAN EVER!

TCB TRACKER - FROM THE CAREBEARS

FRACTAL MUSIC - YOUR ST COMPOSES IT!

SHADOW OF THE BEAST - MAGIC FLY - DAYS OF THUNDER



'The magazine for the Dedicated Atari User'

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Issue 47 December/January 1990

ST FILE

SANTA'S REVENGE

Can you help Santa make Christmas happy again?

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A disk containing all of the 8-bit programs from each issue of NEW ATARI USER is available either separately or on subcription. Single price £2.95 per disk, Subscription rates (6 issues)

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SUBMISSIONS

PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it! Appropriate payment will be made for all published programs and articles, all payments being made at the end of the second month shown on the cover of the issue concerned.

The next issue of NEW ATARI USER will be on sale 24th January
Editorial copy date is 10th December

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PAGE 6 PUBLISHING's
NEW
ATARI
USER

Issue 47
December/January 1990

'The Magazine for the Dedicated Atari User'

ISSN No. 0958-7705

THE CREDITS

All of the usual stuff is on page 3 but here are the people who made this issue possible.

Les Ellingham did the editing, layout, paste up and, in turn delighted and despaired at Fleet Street 3 wondering why such a cracking package should be let down by a couple of bugs in the output routine that mean everything takes twice as long as it needs.

Sandy did the advertising, mail order and general office stuff and even managed a bit of embroidery

Stacey is now going to evening classes. Magazine production? Effective telephone communication? Managing the mail room? No, pigs, sheep and poultry!

The Regular Contributors, who provide the backbone of the magazine and can generally be relied upon to come up with good articles and reviews, are ....

Mark Hutchinson | **John S Davison**
John Davison jr | **John Sweeney**
Paul Rixon | **Damon Howarth**
Ian Finlayson | **Peter Hickman**
N.B. The Tipster also contributes

All other contributors for this issue are individually credited alongside their articles or programs. Thanks to everybody for sharing their work and enthusiasm with other Atari users.

The cover is from **Bill Halsall**'s latest game **ACE DRIBBLER AND THE ROADHOGS**. Many thanks to Bill for being one of the few who seem to be able to keep writing great games. Let's hope that he inspires a few more of you.

Van Morrison once again made a major contribution to this issue, as did Clannad and Neil Young with a scorching album that seems to combine Heavy Metal with melody and understandable lyrics! Quite a bit of 'New Age' stuff got listened to as well, primarily from New World Cassettes with people such as Denis Quinn, Philip Chapman, David Sun, Peter Howell and others that none of you have heard of! Musn't forget The Waterboys who might have made their last good album, Run Rig for a neat little EP and Paul Simon for almost matching Graceland.

NEW ATARI USER is the magazine, PAGE 6 is the concept. Wherever you see PAGE 6 you'll know what it means!

The next issue of NEW ATARI USER could feature YOUR article or program, so SEND IT IN NOW!

PAGE 6 shows just what you can do with your Atari. With the exception of final output on a Linotron and use of a repro camera for the listings and photos, the magazine is prepared entirely with Atari based equipment and software - not a Macintosh or IBM in sight! Hardware used includes 130XE, 1050 disk drive, 810 disk drive, 410 cassette (occasionally!), 850 Interface, NEC 8023 printer, 1040ST, SM124 Monitor, Atari SH204 hard disk drive, Cumana 1 meg disk drive, Epson RX100 printer, Kyocera laser printer, Microstuffer printer buffer. Software includes Superscript, Turbo Basic, Kermit, PC Intercomm, TARI-TALK, Print Wiz, STWriter, Protext and Fleet Street Publisher.
Articles and programs submitted on XL/XE disks are subjected to various custom written programs before being transferred across to the ST via TARI-TALK. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. A disk with the finished pages is sent up to a typesetting bureau to be output on a Linotron 300 and, hey presto, finished pages are sent back. It really does work - at last! All that is left is to drop in the listings and photos. Well, it's not quite as easy as that, but you get the idea!

Editorial

THE SURVIVOR!

Well, we finally made it as the longest surviving Atari 8-bit magazine in the world! News from the USA is that ANTIC magazine is no longer, having been incorporated as a section into START magazine where, unless ANTIC change their policy, it will slowly wither and die. At the moment START comes with an ST disk and costs about £14.95 and nobody is going to pay that kind of money for a small section in a magazine. So we are the last bastion for the 8-bit but let's not pretend that everything is rosy. Far from it, we have to be really dedicated to survive now and one of the first things that you will have noticed, if you buy your copy of NEW ATARI USER in the shops, is that the price has had to be increased to £1.95. Sorry, but it had to be done.

Selling specialist magazines through the mainstream newsagents (i.e. W.H. Smith) is becoming more and more of a nightmare for smaller publishers as bigger selling magazines encroach on the shelf space. What happens is that the publisher with the clout ensures that his new titles are put on the shelf even though they might only last one or two issues. As a result lower selling magazines get squeezed off. Folks like you don't see the magazine on the shelf and don't ask for it so the newsagent assumes that there is no interest and therefore decides to stock it on special order only. None of the customers are aware of this and so don't order it and the downward spiral begins. This sort of thing doesn't only happen to computer magazines. There are a couple of specialist magazines that I buy and they are suffering the same fate. Meanwhile such widely popular titles such as Model Helicopter World stay on the shelves because the publisher also publishes a dozen other titles and 'take one off and you can take them all off'. You can't tell me that there are more people interested in model helicopters than there are Atari owners!

What can you do? Well you either subscribe or you can make sure that you go into your newsagent when the magazine is due and ask for it, even if you see it on the shelf! If the newsagent says that it is available to order only, place a regular order and if he fobs you off with a load of bullshit about us no longer publishing or never having heard of us tell him to check his copy of the Magazine Distribution Book and to phone our distributors for the latest copy.

Seems a lot of hassle doesn't it? Well, if you want to keep reading a magazine about your favourite computer it has to be done. Sit back and do nothing and every one down the line will do nothing. Eventually we will be forced to do nothing.

BAD NEWS AND GOOD NEWS

Shock news recently is that both Sunaro and Callisto Computers, long time bastions of the 8-bit world have both packed up business within a couple of months of each other. That is a major blow to everyone who needs software for their machines as these were major mail order suppliers. At the time of writing both, unfortunately, owed us a great deal of money so we are hoping that there are not more serious repercussions. It is sad that folks who have long supported the Atari community should be forced into these positions and we can only hope that they manage to do the decent thing by those that have supported them.

The good news is that Miles Better Software continue to support the 8-bit in depth and show every intention of doing so for a long time to come - provided that you support them. Miles Better are now virtually the only software retailer offering mail order support and it is imperative that you support them. Buy all the new titles you can afford, visit their shop (apparently, it's a real Aladdin's Cave) and give them all the support you can. Miles Better will not go out of business as they sell software for a whole range of machines but they could decide to no longer support the 8-bit Atari and if that happens you will have only yourselves to blame.

Les Ellingham

news scene

NEW ICD DISTRIBUTOR

Gralin International have announced that they have taken over the UK distribution of the ICD range of 8-bit products. These include the ICD Printer Connection, Action!, MAC/65, SpartaDos, US Doubler, P:R: Connection and several other products.

Most of the products are freely available but certain items such as the P:R: Connection are difficult to obtain at the moment due to shortages in supply of components from the Far East. Apparently the P:R: Connection has not been available in the States for several months due to these problems.

Gralin promise that they can provide after sales support 'normally expected direct from the manufacturer' as they use all of the products and have a close liaison with a major User Group where problems can be ironed out. Unfortunately a telephone help line is not available at present.

Another line that Gralin have taken over is the Computerhouse Controller Card which has been advertised in New Atari User in past years. This allows the user to use two different Operating Systems, switching between each as required. A full set of utilities for use with this expansion is available.

Gralin can be contacted at 11, Shillito Road, Parkstone, Poole, Dorset BH12 2BN.

SHOPPER SHOWS

The Computer Shopper Show takes place at the Wembley Conference Centre in London from 6th to 9th December and the organisers promise a feast of entertainment as well as a host of bargains. Unlike last year, when they were forced to close the doors, the new venue should provide ample opportunity to walk around and pick up some Christmas bargains.

There are a number of new product launches promised and Mandarin Software will be showing off new extensions to STOS as well as hosting many demonstrations. The Show is also the venue of the Computer Football Association Challenge Cup Finals at which you can see if your favourite soccer game is the best. Heats have been taking place all over the country and the finalists come from the UK and overseas. You can watch the European Cup Final!

So confident are the organisers of the success of this event that they have already begun to organise the Spring Computer Shopper Show at the same venue from May 10th to 12th 1991. It is expected that many companies will use this show as a major springboard for new product launches as well offering the public the chance to actually buy the product, a feature notably missing at the recent Computer Entertainment Show.

ZEP DISKS ... 1020 SUPPLIES

Miles Better Software in Cannock have announced that they have secured the rights to produce disk versions of all of Zeppelin's games which are normally available only on tape. Prices will be reasonable, check their advert or give them a ring on 0543 466577.

If you have a 1020 printer then contact Derek Fern at Micro Discount for supplies. He has replacement pens and can supply large rolls of paper together with details of a modification to the printer to accept them. This consists simply of a wire frame that can be made from a wire coat hanger(!) and a full diagram is supplied with each roll of paper. Paper costs £2 per roll plus postage. Contact Derek on 021 353 5730.

LOW COST 24-PIN PRINTER

Citizen have a new 24-pin printer available in time for Christmas retailing at £279 plus VAT, an excellent price for this quality of printer. The Citizen 124D prints at 120 characters per second and has all the usual features of a 24-pin. It comes with a comprehensive two year warranty on all parts and labour and should be available from all Citizen stockists. Call Citizen on 0895 72621 for details of your nearest stockist.

A FANTASY?

Fantasy Productions have sent us a demo disk of their new game POD and very impressive indeed do the graphics look. Unfortunately we don't have space to include screenshots but take our word for it they are quite impressive, in a style similar to Zeppelin's best games. If the gameplay matches the graphics then you are in for a treat!

Fantasy are now promising release of this game in early 1991 with further games scheduled throughout the year. We do hope that they can succeed but, given the total lack of support from the trade for XL/XE games, we feel the chances that they will be able to sell the game in reasonable numbers are slight. Harlequin recently tried and found that the going was a lot harder than they expected. Still we wish them luck.

In the meantime Fantasy are looking for other Atari users to join them in this and future products and are seeking people with skills in music, graphics or pre-written software. Contact Stuart Keir at Fantasy Productions, 32 Brooklane Fields, Harlow, Essex, CM18 7AT if you are interested.

SAVE ON THE SHOPPER!

Your discount voucher for the Computer Shopper Show courtesy of NEW ATARI USER. Just take this voucher along to the show and present it at the door for a discount of 50p off the individual ticket or a massive £4 off the price of a family ticket.

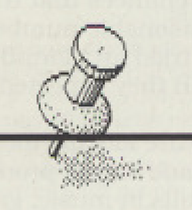
Unfortunately, you'll have to cut the coupon (and ruin a great magazine) as the organisers won't accept photocopies. Pity!

The Computer Shopper Show is at the Wembley Conference Centre and runs from 6th to 9th December. Times are shown on the voucher.



Mailbag





Must remember to write to Mailbag

P.O. Box 54
Stafford
ST16 1DR

MACCLESFIELD CLUB

I am writing to tell you (and interested users) about our User Group, Macclesfield Computer Club.

The club has been going for 7 years and caters for all interests and computers. All the members are very helpful, particularly to new users. Club funds are used for show trips and buying equipment for members etc. We are hoping to organise a special 'DEMO DISCO NIGHT' for childrens charity where all the best demos from around the world will be shown on a giant projector screen with full disco laser support.

Anyone interested in supporting us can write, or better still just come along (bring a machine if you like). Or just come any night for a drink and a chat. The club meets every Tuesday night at Harleqins Wine Bar, 68 Chestergate, Macclesfield, Cheshire.

J. Bradbury
Club Chairman

PASCAL UPDATE

In Issue 42, K.L. Laidlaw asked if any version of PASCAL had been produced for the 8-bit Atari. Yes!! At least three!

DRAPER PASCAL is $20 complete with software, manual and registration from the author and has received good reviews over here. I believe it is now in the public domain as shareware. The author can be contacted at Draper Software, 307, Forest Grove Drive, Richardson, Texas 75080, U.S.A.

CLSN PASCAL was released in August 1989, I haven't yet seen it reviewed. Available from CLSN Software, 10 Arlington Place, Kearny, NJ 07032, U.S.A. Telephone number is (201) 998-1554.

KYAN PASCAL is the one I own. An excellent full Jensen-Wirth for beginners and advanced programmers. Optimised 6502 machine code compiler, easily configured for use with a RAM disk, excellent tutorial style manual in small format ring binder. Price $69 from KYAN Software, 1850 Union Street, #183, San Francisco, CA 94123, U.S.A. Telephone number is (415) 626-2080.

If you can't get these from the above companies they are all available from B&C Computer Visions, 3257 Kifer Road, Santa Clara, CA 95051, U.S.A. Telephone number is (408) 749-1003. FAX number is (408) 749-9389. Lightspeed C is also available for $39.95.

That should be Mr. Laidlaw busy!

Michael Seaman
Ontario, Canada

DIFFERENCE?

Please could you tell me the difference between an Atari 65XE and an Atari 130XE. I have a 600XL and wish to purchase one of these two computers.

Dean Richards

The only difference between the two is the amount of memory. The 65XE is 64k, including the Operating System, and the 130XE is 128k. Although it may seem that the 130XE is twice as powerful this is not really the case. The extra 64k in the 130XE is not available to normal programs and can only be accessed through switching in and out different banks of 16k memory. Very few commercial programs have been written to take account of this extra memory and writing your own programs is not easy although quite possible. If you are not a programmer then I would go for whichever machine you can find at the cheapest price.

ON THE BACK

I have had a few years experience of amateur electronics but am fairly new to the world of computers. I have a 65XE which I am much enjoying learning to use but one thing puzzles me. On the back of the computer is a 7-pin expansion port which is not mentioned in my owners manual, nor is it shown on the layout drawing.

What do I use it for? Is it possible to buy a plug in accessory or even to build something, I know not what? Your advice would be much appreciated.

B. D. Arnold,
Worthing

We have touched upon this subject in previous Mailbag columns but new owners may not have seen the answers. The port on the rear of the XE is a cut down version of the Parallel Expansion Bus that appeared on the XL models. Atari did not make public the details of this expansion socket and so virtually nothing has been produced commercially to take advantage of it. When the XE was made, Atari cut down the expansion bus to the 7 pins you now see but still did not document it. It is possible to build devices to use this port but as the technical information is almost impossible to come by, very few people bother. The American magazine ANTIC did publish a four part article on this expansion bus several years ago but you will have to track down the appropriate issues and obtain them second hand. If you are persistent enough to follow this through, a note in the Contact column might do the trick.

IT IS CALLED ...

I am writing to ask if you know the name of a game I am looking for. It involves shooting space ships and at a certain point you have to 'dock onto' another little ship making your own spacecraft a bigger and better one. It is quite a simple game and it is a bit of an oldie. It used to be an arcade game.

Steven Richardson
Caterham

Yes, I remember that one, great game, but I can't remember what it is called either! Someone knows, and someone will write and tell us. Watch this space!

WHICH IS BEST?

I have owned an Atari 800XL since 1985 when they became very competitive in price. I now own a 520STE which is superb, however I don't want to see the 8-bit die as I still own a 130XE with disk drives.

As a serious computer the ST walks all over the XL/XE with its 80 column screen and bags of memory plus its fast high capacity disk drive. When it comes to games however I feel that the XL/XE offers much better value for money when you can pick up excellent budget games for £2.99 whereas ST budget games are £10 each and I have yet to be impressed. Yes, the graphics and sound are superior but playability wise there's no gain, in fact they tend to be slow to start and over complicated. I still play Mercenary, Encounter, Dropzone, Hitch Hikers, Blue Max and Zybex all of which I still enjoy on my 8-bit Atari. My only regret is that there is no version of Elite which is my all time favourite game. I know it would be easy to convert and that the Atari could produce a version second only to the BBC disk version on the 8-bit.

So don't knock the Atari 8-bit, it only reduces confidence in the XL/XE owners who have no need to feel insecure at all.

M.R. Wilson,
Yeovil

MINI OFFICE BOTHER

I recently purchased Mini Office II for my XL. In this connection I have so far used primarily the label printer appear to be experiencing some problems with this option. In order to obtain the label width I require (which is not that big)I have to expand the page length.

Also I note that the manual indicates that a copy of the manual is also held on disk however I have been unable to locate it. Have I purchased a poor copy?

Finally do you have any additional information regarding the printer code strings especially in relation to the label printer option.

Peter Geraghty,
Sutton

We have included this letter for the benefit of many owners who have experienced similar problems. There is a bug in the Label printer which has been there since the program was written and, unfortunately, there is nothing we can do about it since we do not have access to the source code. When using the Label Printer with the Database it works fine, printing as many labels as you require at the correct width and length. Used to print individual labels however it is virtually useless since the problem described occurs. A single label can be printed if the page length is set much longer than the standard label size of 9 lines but that means that you cannot print more than one copy of a label and your labels will spew out of the printer! If we could fix it, we would. If anyone else has fixed it please let us know. The manual is not on the disk since there is no room for it. Maybe at the outset it was included but it is not on the current version and, in any case, would only duplicate the manual you receive when you purchase the official version.
The printer control strings are determined by your printer and vary from printer to printer which is why they are not included in the program. You need to check your printer manual for the feature you wish to use and insert the appropriate code. The manual will tell you which ASCII codes activate the features such as bold, condensed, elite etc. on your printer.

APOLOGIES TO CONTRIBUTORS

I have a complaint about submissions in that I have not received any acceptance or rejection details of my submission apart from a letter confirming the receipt of my program.

The program in question is called Puss in Boots written in Basic. I sent it in over a year ago and have been patiently waiting for some news. With the Editor complaining about the shortage of submissions it makes me more concerned. Is the game not good enough or have you simply lost the disk? In either of those cases can you try and get the disk back to me?

Please reply to this letter because I would like to submit some more of my programs (a machine code game, a quickie and a Tetris clone) but I am put off doing so because of the situation with this, my first, submission to your magazine.

Daniel Lea,
North Humberside

Sorry, sorry, sorry! I have said it before in the editorial but we are hopeless in acknowledging contributions. It is simply that it takes so long to look at contributions and there is no time to reply to them all. Daniel, thankfully, was not deterred and sent in his further contributions and will be pleasantly surprised to find his excellent machine code game as this issue's bonus game. Like everyone else seeing the program in print will be the first indication that it has been accepted, a situation that is not satisfactory but it gives contributors a real buzz when they open the magazine! Daniel's 'quickie' is also very good and almost made it into this issue (only lack of space kept it out). The Puss in Boots game, by the way Daniel, is too long to go in the magazine.

The moral is, please do not give up if you don't hear anything. If you believe your programs are good keep on sending then in and one day you may open up the magazine and get the shock of your life! That happened to Bill Halsall a while ago and look how many of his programs we have published since. Bear with us! Please.

YOURS DISGUSTED

Dear Ignorant Page 6,

What do I have to do to get my letters printed? do I have to climb Mount Everest? For the past two letters that I have written and asked to be printed. Now this is very friendly, for the mood I am in at the moment! I wonder how many other Page 6 Atari Users get ignored? Now, is there any chance of you actually printing this letter? or are you going to screw this up and through (sic) it into the bin?

Yours quite reasonably put!
Master J.O. Marsland

All you have to do to get a letter printed in Mailbag is to write about something interesting, preferably that asks questions that other users might be interested in knowing the answers to or which contains some useful information. We don't seem to get too many such letters nowadays so it would be nice if a few more people could write to Mailbag. If your letter is interesting it stands a good chance of being published. Mind you we sometimes slip up and print a load of old rubbish!

ERROR AID

Ever burnt the midnight oil doing a spot of programming, when suddenly one of those nasty little error codes rears its ugly head? To make matters worse, its one of those obscure ones that comes around every blue moon and you can't remember how the manual describes that particular code. In desperation you try to find the manual, it's not lost, its just in a very safe place! More time wasted.

For the BASIC programmer, this can now become a scenario of the past for ERROR AID will do away with the manual and save considerable time. With Error Aid installed, every time an error occurs, the Error Aid routine will take control and print an English message instead of a meaningless number. The message that Error Aid displays is similar to the description in the Reference Manuals.

TYPING IT IN

Type in Listing 1 check each line with Typo 3, then save a copy to disk. When you RUN the program, an AUTORUN.SYS file will be created and when this disk is booted, Error Aid will be installed automatically into low memory.

ADVICE

Error Aid is protected against System Reset and will remain resident in memory until the computer is turned off. I don't advise you to type DOS as this will inevitably cause the computer to crash. And one final note, POKEing 8345 and 8350 with any value then pressing RESET will change the screen colours and default to those colours on every press of RESET.

by

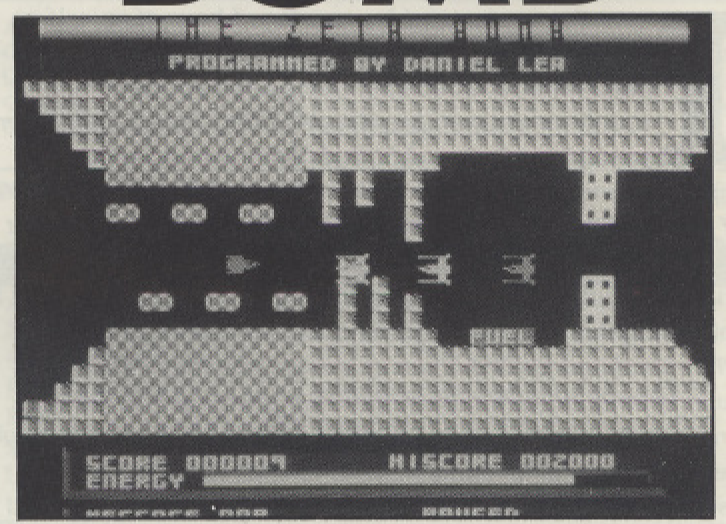
Phil Cardwell

```
EI 1 REM ******************************
GN 2 REM *          ERROR AID         *
RQ 3 REM *              by            *
ZY 4 REM *        Phil Cardwell       *
EC 5 REM * -------------------------- *
XS 6 REM *   NEW ATARI USER - DEC 90  *
EO 7 REM ******************************
NN 8 REM
LL 10 DIM LINE$(80),LINEOUT$(40):OPEN #1,
   8,0,"D:AUTORUN.SYS"
KA 20 LINE=990:TRAP 100:GOSUB 200
WR 30 LINE$(1)="0":LINE$(80)="0":LINE$(2)
   =LINE$:LINEOUT$=LINE$(1,40)
KP 40 LINE=LINE+10:READ LINE$,CHKSUM:? "C
   HECKING LINE ";LINE
MZ 50 CHK=USR(1536,ADR(LINE$),ADR(LINEOUT
   $))
HE 60 GOSUB 300:? #1;LINEOUT$(1,LEN(LINE$
   )/2);:GOTO 30
SP 100 ? #1:CLOSE #1:? "WORKED OKAY !":EN
   D
MQ 200 FOR A=1536 TO 1658:READ D:POKE A,D
   :NEXT A:RETURN
IX 210 DATA 216,104,104,133,204,104,133,2
   03,104,133,206,104,133,205,169,0,141,1
   27,6,141
LH 220 DATA 128,6,160,255,140,125,6,140,1
   26,6,173,126,6,201,39,208,11,173,127,6
QG 230 DATA 133,212,173,128,6,133,213,96,
   172,125,6,200,140,125,6,177,203,32,111
   ,6
IS 240 DATA 10,10,10,10,141,123,6,172,125
   ,6,200,140,125,6,177,203,32,111,6,24
ZH 250 DATA 109,123,6,172,126,6,200,140,1
   26,6,145,205,24,109,127,6,141,127,6,17
   3
MY 260 DATA 128,6,105,0,141,128,6,76,30,6
   ,96,201,58,144,4,56,233,55,96,56,233,4
   8,96
YL 300 DLNE=PEEK(184)*256+PEEK(183)
RV 310 IF LINE<>DLNE THEN ? "LINE ";STR$(
   LINE);" MISSING!":END
QZ 320 IF CHKSUM<>CHK THEN ? "ERROR IN DA
   TA AT LINE ";STR$(LINE):END
ZF 330 RETURN
SY 1000 DATA FFFF0020FB20A9008D3C21AD2103
   85CBAD220385CCA000B1CB99A9208810F8ADAF
   201869018DF820,4556
QT 1010 DATA ADB02069008DF920A9508DA720A9
   0D8DA820A9548DE702A9258DE802A9A3850CA9
   20850DA9B78DAF,4644
ZZ 1020 DATA 208D4603A9208DB0208D4703A9A9
   8D2103A9208D2203A9018D3E21A90985CDA925
   85CE201721A99B,3784
PW 1030 DATA 20F720A92285CDA92585CE201721
   A99B20F720A93B85CDA92585CE201721A99B20
   F720CE3E21A900,4424
XJ 1040 DATA 8DC602A90E8DC502602034204CFF
   FF0000000000000000000000004C3420488D3D
   218A489848A5B9,2913
SG 1050 DATA F029AD3D21C941F022C99BF00FAD
   3C21C902F017AD3C21D00B4CFA20A9008D3C21
   4CF2206868AA68,4509
EB 1060 DATA A00160A9028D3C2168A868AA684C
   FFFFA5B9FC20F7210AA8B00DB93F2185CDB940
   2185CE4C1721B9,4736
DB 1070 DATA 6B2185CDB96C2185CEA0FFC89848
   B1CD297F20F72068A8B1CD10F0AD3E21D00DA9
   2020F720A9018D,5065
LS 1080 DATA 3C214CE6206000000000000000C3
   21D421DF21F82109221422212222C22392247 22
   5922672280228D,2538
PS 1090 DATA 22A122B522C122D522E522F62205
   231423252338234723562363237223802380B23
   9B23A923C123D1,3397
```

```
TE 1100 DATA 23E423F623092414242024382400
     00000000000000000000000000000000000000
     000000004F2461,1052
SA 1110 DATA 2474247D248B249F24AC24C124CC
     24DB24EE24FC244E4F5420454E4F554748204D
     454D4F52D95641,3724
NL 1120 DATA 4C5545204552524FD2544F4F204D
     414E59205641524941424C4553202D203E3132
     B0F821F3224241,3207
OF 1130 DATA 44205354524494E47204C454E4754
     C84F5554204F4620444154C14E554D42455220
     3E33323736B749,3069
ZV 1140 DATA 4E5055542045524FD244494D2F
     434F4D204552524FD2535441434B204F564552
     464C4FD74E554D,3325
LL 1150 DATA 42455220544F4F20434F4D504C45
     D84C494E45204E4F5420464F554EC44E4F204D
     41544348494E47,3072
HT 1160 DATA 20464F522053544154454D454ED4
     4C494E4520544F4F204C4F4EC7474F53554220
     4F5220464F5220,3022
XK 1170 DATA 44454C455445C452455455524E20
     574954484F555420474F5355C253594E544158
     204552524FD242,3358
NJ 1180 DATA 414420535452494E472043484152
     41435445D250524F4752414D20544F4F204C4F
     4EC74241442044,3022
NF 1190 DATA 4556494345204E554D42F422EF23
     45D24C4F41442046494C45204552524FD24252
     45414B20484559,3317
PC 1200 DATA 2041424F52D4494F434220414C52
     45414459204F5045CE4E4F4E2D455849535445
     4E542044455649,3069
WQ 1210 DATA 43C5494F4342205752495445204F
     4E4CD9494E56414C494420434F4D4D414EC446
     494C45204E4F54,3209
UH 1220 DATA 204F5045CE42414420494F434220
     4E554D4245D2494F43422052454144204F4E4C
     D9454E44204F46,3078
UF 1230 DATA 2046494CC55452554E4341544544
     205245434F52C44445564943452054494D454F
     55D44445564943,3243
PP 1240 DATA 45204E4F542041434B4E4F574C45
     4447494EC75345524941 4C20425553204652 41
     4DC5435552534F,3092
HM 1250 DATA 52204F5554204F462052414E47C5
     53455249414C20425553204FF023EB24564552
     5255CE53455249,3356
IU 1260 DATA 414C2042555320434845434B5355
     CD44455649434520444F4EC556455249465920
     4552524FD24655,3226
ER 1270 DATA 4E4354494F4E204E4F5420494D50
     4C454D454E5445C4494E53554646494349454E
     54205343524545,3017
HF 1280 DATA 4E205241CD4452495645204E554D
     424552204552524FD2544F4F204D414E59204F
     50454E2046494C,3055
CZ 1290 DATA 45D34449534B2046554CCC444154
     4120492F4F204552524FD246494C45204E554D
     424552204D4953,3155
HP 1300 DATA 4D415443C84241442046494C4520
     4E414DC542414420504F494E54204441544120
     4C454E4754C846,3080
CQ 1310 DATA 494C45204C4F434B45C4434F4D4D
     414E4420494E56414C49C44449534B20444952
     4543544F525920,3058
ED 1320 DATA 4655EC2453254CCC46494C45204E
     4F5420464F554EC4504F494E5420494E56414C
     49C41112121212,3090
MG 1330 DATA 1212121212121212121212121212
     1212121212857C204552524F5220414944202D
     20494E5354414C,1031
MN 1340 DATA 4C454420FC1A121212121212121212
     12121212121212121212121212121283E002E1
     020020,1553
```

DISK BONUS

THE ZETA BOMB



A 100% machine code arcade game by Daniel Lea

The evil Zyern enemy have planted a bomb deep in the bowels of the Earth and only you have the experience and courage to do anything about it. This bomb, codenamed The Zeta Bomb will almost certainly spell the end of mankind if it is triggered. Whilst you don't relish the task, you accept your responsibilities and make your way through the tunnels to deactivate the bomb.

CONTROLS	*FIRE - START GAME*
	OPTION - PAUSE GAME
	JOYSTICK - CONTROLS SHIP
	FIRE BUTTON - DESTROYS ZYERN SHIPS AND MAKES A WAY THROUGH THE TUNNEL

There is a cheat mode but no clues on how to activate it!

I The cavern can operate at three different speeds, half speed, normal speed and double speed depending on your ship's position on screen.
I Watch your energy carefully as it is used quite rapidly. Replenish it by landing on FUEL dumps.
I Watch the message bar for useful hints and messages during the game

The game is 100% machine code and should be booted with the OPTION key held down. Many of the Atari's special features have been used such as smooth scrolling, vertical blank interrupts and display list interrupts enabling more than the usual number of colours to appear on screen at once, and of course the built in sprites (player missile graphics) are also used.

Daniel Lea is aged 15 and says he learnt a great deal of his programming whilst writing this game. He states that it would not have been possible without that programmer's bible, Mapping The Atari, and recommends that every potential programmer gets hold of a copy by whatever means!

THE ZETA BOMB is the BONUS on this issue's disk. Disk subscribers will receive their copy with this issue of the magazine but the disk is available separately price £2.95 from PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR. Credit card orders are accepted on 0785 213928.

ZORK II

Tales of Adventure

I am always amused by an image I have of myself as 'the adventurer' wandering around endless caverns and rooms, a bit scruffy, always with a frightened countenance, carrying the obligatory sword and lantern, possibly with the odd bit of ill-fitting rusty armour, trying to carry every object, treasure and useful or useless bits of junk I have found in my travels. I end up with every pocket stuffed full, a box, suitcase or backpack overflowing. I have, in one adventure carried a tray in one hand, onto which I found I could heap innumerable objects, a tool box equally full in the other hand and pulling a sort of trolley, piled high with more junk, behind me with what must have been my third hand!! And yet, thus laden, I have climbed mountains, swung through trees like a demented Tarzan and crawled through narrow fissures in the bowels of the earth.

This apparition is always lost, half blind, illiterate, extremely aggressive, totally dishonest and consumed by an overpowering curiosity. It will try to kill anything that moves, steal anything that glitters and absolutely nothing is safe from its prying and probing. Fortunately for it and me, it can be reincarnated time and time again as it can also be very stupid. But together we have survived, conquered and thoroughly enjoyed many adventures in many different worlds and hopefully do so in many to come.

ZORK AT THE TOP

The Zork trilogy is at the top of my favourite adventure league, Zork I has always been well documented in past editions but Zork's II and III barely get a mention, so I thought to rectify this a little by writing of my experiences with Zork II and offering some simply coded clues and a map of the caverns to help any who have floundered with this adventure.

The aim in Zork II is to defeat the Wizard of Frobozz and thus to take over his powers. To do this you need to collect 10 treasures and 3 crystal spheres. With the spheres you can summon a fearful demon who when suitably bribed (10 treasures worth) will then grant you ONE wish. With the right wish the Wizard is destroyed leaving his wand for your use. Up till then the wizard is a class one menace, popping up where-ever and pinching your hard earned treasures which he then stores in his trophy case. I have found no way of retrieving them, thus frequent saving of your position is advisable.

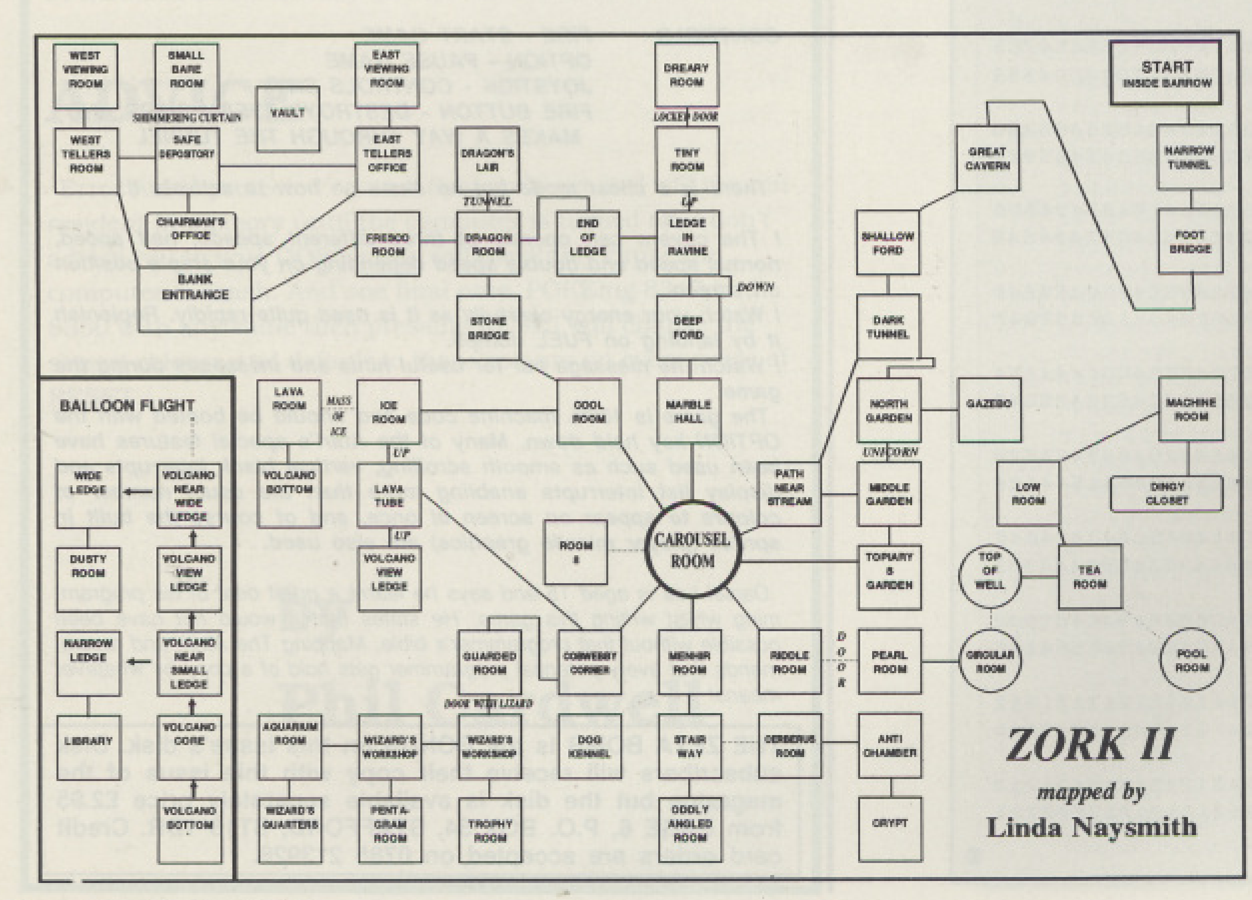
Zork II starts funnily enough where Zork I left off, but now there is a sword and a lamp left for your convenience. There is no need to bang your shins or even fall down a crevice to your untimely death in the search for a light. The sword comforts both the aggressor and coward in your adventurers spirit.

At first the path is straight and offers nothing to explore or examine, then you find yourself in a garden with a pretty Gazebo and you catch a fleeting glimpse of a Unicorn, it has a gold key around its neck and you know that you have to get it! Somehow. Trying to follow the Unicorn can bring you to the Topiary garden where things are not so pretty ... and those clipped animal hedges look rather menacing ... better run.

You could be in the Carousel Room now, and after a while you realise that this room is constantly revolving, so you cannot be certain where you are going to end up when you leave it. This doesn't help the map much.

A bit more meandering may bring you face to face with a monstrous Red Dragon ... GULP... about turn, run and think. If you are like me then you will obey the first rule ... and try to kill it!

To start your collection of treasures you have to get the better of this Dragon, although killing it may not be the correct solution. The Dragon is holding a beautiful



ZORK II
mapped by
Linda Naysmith

Princess prisoner in its lair and to rescue her should be your first objective. Pay attention to her and follow her every move and you will be well rewarded for your bravery.

Then you need to find a way to stop the Carousel Room from turning so you can go in the direction you wish. This is an intriguing puzzle which has more than a slight touch of Alice in Wonderland. A friendly Robot will help you to turn off the machinery that runs the Carousel room and will also help you escape a devious trap, but to get there you will have to learn how to operate a bucket in a well with the aid of a teapot full of water, needless to say it is a magic bucket!

Frobozz lives behind a door with a lizards head embedded in it, which prevents you from trying to unlock it. The first rule doesn't work here either so you may prefer to be kind instead.

In these chambers you will also meet a baby Sea Serpent, living in an aquarium, of course. There is something else in the aquarium that you need, how to get it without the baby Sea Serpent getting you is a problem that for once needs forceful action.

There is what appears to be a maze but, as Infocom's mazes are always out of the ordinary, there is no need to blunder about until you, hopefully, arrive at something useful. The maze has a logical solution and a number of pointed clues in the text. It helps if you are a sporting enthusiast, which is where I was at a disadvantage. The nearest I get to sport is in turning off the telly whenever it is on. So the Oddly Angled Room had me beat for quite a while. My excuse is that Zork II was written by Americans, and I know even less about their sports than I do about our own! Solving the maze opens up a secret stairway which leads you to Cerberus the three-headed dog -Rotwielers pale to insignificance against this beast.

The next delight I found was crumpled at the bottom of the volcano and for the first time in my life I went up in a hot-air balloon. You must take care not to get too adventurous nor must you let your fuel burn out. There are a couple of stops you can make on the way up, one is a library which provides some interesting reading, the other room contains a locked rusty box. Now this box obviously contains a vital object, but how do you get into it - blast it - the lock is rusted and the key won't turn....

The Bank contains a treasure which you can pick up easily and if you investigate the curtain of light thoroughly enough you will find another treasure, but you are also trapped, the Gnome of Zurich can free you but he demands a price... one you may think you cannot pay and still complete the game.

One puzzle which I really enjoyed solving, was how to get the Blue Crystal Sphere. It is behind a locked door, what else. The door even has a peephole in it so you can see that the sphere is there, but where is the key? Examining the keyhole will reveal that the key is in the lock - but on the wrong side of the door! You have the means to get the key to your side of the door - you only have to work out how!

By now you should have collected all the treasures and spheres you need to summon the Demon and live. Place the three spheres on the appropriate stands in the Wizards work-room and they will combine magically together to form a Black Sphere. Put the Black Sphere into the Pentagram and the Demon will appear. Now is a time for bribery and to bide your time to make the correct wish. If successful the wizard will be vanquished and his wand and powers will be yours. But the adventure is not finished yet! You still have to find your way out of Zork II and to the beginning of Zork III.

What about that Menhir, obviously blocking a passage, and what about the fierce Cerberus, can he be tamed?

What happens in the topiary garden if you linger too long and how can you catch that elusive Unicorn?

Will you ever need to use that can of Grue Repellant and if so how long will it be effective?

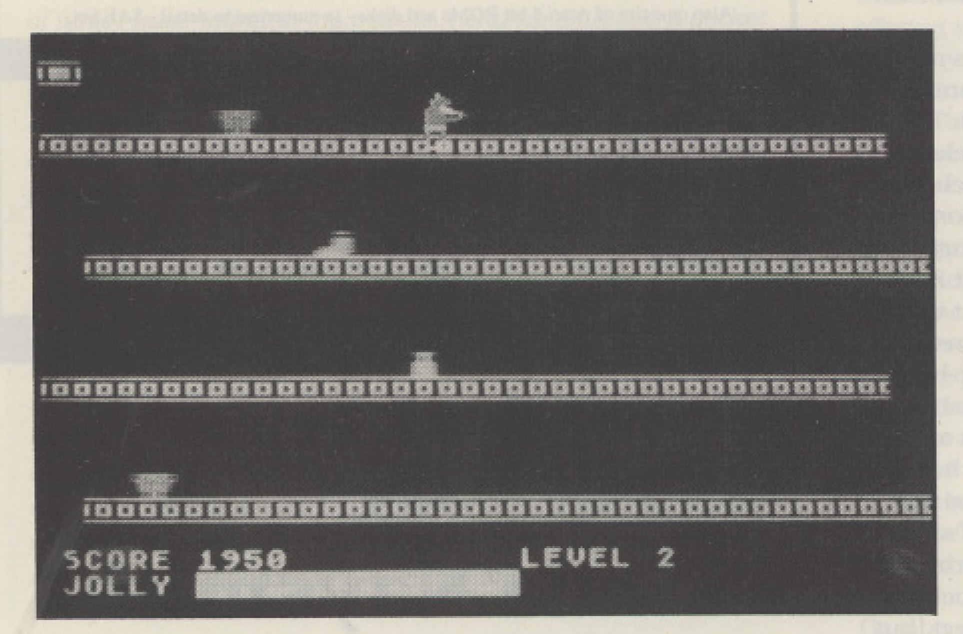
by
Linda Naysmith

ZORK II HINTS

The following clues may answer some of these questions or maybe none. Read the clues backwards and if I have my spelling right they will, perhaps, help you to solve Zork II.

1. Can't kill the Dragon? - MOO REC IEH TOT MIH DAE LDN ADR OWS EHT HTI WNO GAR DEH TTIH
2. How to get the key from the Unicorn? - TIA WDN ASS ECN IRP EH TWO LLOF
3. How do you go up in the Balloon? - RIA TOH ESU
4. Can't open the Rusty Box? - DNI FOT YSA EDN ADN UOR AGN IYL ERA ESU FEH TDN AEV ISO LPX EEH T. E REH GNI TSA LBF OTI BAO DOT DE EN
5. Can't solve the riddle? - LLE WLL EW
6. What are the Library books for? - YLH GUO ROH TME HTH CRA ES
7. What do you do in the Circular Room? - RET AWH TIW TEK CUB LLI F
8. Can't remove treasures from the Bank? - ELB AUL AVS SEL GNI HTE MOS EMO NGE VIG NEH TDN ASE MIT EER HTT HGI LFO NIA TRU CHG OUR HTG NIK LAW YRT
9. Can't unlock the door in the Tiny Room? - EUL CRO FER EHP SDE ROT NIK OOL
10. Can't get the Red Sphere? - UOY EVC SER OTT OBO RYL DNE IRF ESU
11. Can't kill the Sea Serpent? - GNI LRU HDR OWS FOT OPS AYR T
12. Can't move the Menhir? - DNA WCI GAM ESU
13. Can't get past the door with the Lizard's Head? - SEI DNA CTI DE EF
14. Can't find any? - TSA EOG DNA SEK ACT AE
15. Can't fathom the Oddly Angled Room? - WSD NAW N, EN, ES. N URE MOH AET ELP MOC DNA - SIB ULC EHT ERE HW - ESA BTS RIF TAT RAT S!L LAB ESA B
16. Can't get past the dog? - TAP AMI HGN IVI GDN ARA LLO CGO DNO GNI TTU PYB MIH EM AT
17. Running out of light! - LES UOR ACF OTS EW, 8 MOO RNI PL EH
18. You are standing in the crypt with a full score, but you "aren't quite done yet!"? - STH GIL LLA TUO NR UT

SANTA'S REVENGE



BY

STEVE

WILLIAMSON

It is Christmas Eve and the evil Baron Monhausen has threatened to destroy the spirit of Christmas. His plan is to manufacture boring Christmas presents then, on Christmas Eve, he will follow Santa's sleigh and swap his boring presents for all the good presents that Santa gives. On Christmas Day the world will be filled with the moans of disappointed children and this will extinguish the spirit of Christmas forever.

Santa's gnome spy Gerald hears of this plan and locates the site of Baron Monhausen's secret factory somewhere in the Arctic circle and Santa sets out on his sledge to rescue Christmas.

THE GAME

The game is controlled with a joystick plugged into port 1. There are 9 levels. If Santa finishes level 9 then he has neutralised the Baron's factory and Christmas is saved.

In Level 1 you must guide Santa's sledge and land safely. Blocking your way is the Baron's giant snowball defence system. At the bottom of the screen is Santa's 'Jolly' meter. Each time a snowball is touched the Jolly meter shortens. If the Jolly meter is empty then Santa is too sad to carry on and the game is over.

On Levels 2 and 3 Santa must find his way to the exit at the bottom of the screen. If he touches a boring Christmas present then the Jolly meter goes down. The boring presents are underwear, socks and aftershave. The joystick controls Santa and joystick up causes him to jump. The Fire Button fires an ice missile from Santa's ice gun. Hitting the boring computer symbol or a Jason Donovan record scores points.

Finishing a level gives bonus points. The quicker it takes to reach the exit the more bonus points you get. Hang around too long and points will be deducted from your score!

On Levels 6 to 9 avoid certain sections of the floor as they will reduce the Jolly meter.

SANTA'S REVENGE

```
EI 1 REM ******************************
JV 2 REM *       SANTA'S REVENGE       *
RQ 3 REM *             by              *
QX 4 REM *     Stephen Williamson      *
EC 5 REM * --------------------------- *
XS 6 REM *   NEW ATARI USER - DEC 90   *
EO 7 REM ******************************
NN 8 REM
VN 30 REM INITIALISE
GE 40 DIM JOLLY$(31):JOLLY$="[redacted]"
HN 50 H0=28900:MISSILEON=28906
RF 60 V0=28901:FLAG=28917:FRAME=28903
SD 70 MH=28907:MV=28908:SCOUNT=28910:COUN
   T=28908:JFLAG=28914
ZJ 80 TFLAG1=28928:TFLAG2=28927:HIT=28923
YT 90 HITM=28924:DL=33000:V1=28919
TZ 100 PMBASE=36864:SM=24976
LJ 110 PL1=PMBASE+1280:PL2=PMBASE+1536
JX 120 MISSILE=PMBASE+768
ZR 130 COLL0=53252
KD 140 GRAPHICS 0:SETCOLOR 2,0,0:SETCOLOR
    1,0,14
OC 150 POKE 752,255:POSITION 2,10
GT 160 ? "SANTA'S REVENGE"
ZS 170 ? :? "BY STEPHEN WILLIAMSON"
OE 180 ? :? "INITIALISING PLEASE WAIT..."
TK 190 GOSUB 2730:SETCOLOR 4,0,0:GOSUB 20
   20
ST 200 GOSUB 2130
SS 210 ? :? "I'LL PLAY YOU A TUNE WHILST
   YOU WAIT"
XQ 220 GOSUB 2860
ML 230 ? :? "NOT LONG NOW...":GOSUB 3110:
   GOSUB 3430
AK 240 ? :? "        PRESS FIRE TO START"
FU 250 ? :? "        LAST SCORE ";SCORE
BN 260 SETCOLOR 1,0,14
VT 270 A=USR(ADR(MC$),PMBASE+768,5)
KH 280 POKE 623,4
VM 290 GOSUB 2080
QF 300 IF PEEK(644)=1 THEN 290
AW 310 ? CHR$(125)
UX 320 POKE 54279,PMBASE/256:POKE 53277,3
FG 330 POKE 623,17:POKE 559,0:POKE 53278,
   0
PO 340 POKE 512,0:POKE 513,6:POKE 560,232
   :POKE 561,128
OP 350 POKE 54286,192
GZ 360 POKE 756,CHBASE/256
YE 370 POKE 87,0:JOLLY=25:SCORE=0
BV 380 POKE 660,64:POKE 661,102
EU 390 POKE FLAG1,0:POKE FLAG2,0
ER 400 A=USR(ADR(MC$),SM,5):A=USR(ADR(MC$
   ),SM+140,5)
FR 410 REM LEVEL 1
FE 420 POKE 708,14:POKE 709,14:POKE 710,1
   2:POKE 711,40
ED 430 POKE 88,64:POKE 89,102
VJ 440 POKE 752,255
ET 450 FOR I=4 TO 20 STEP 7
NX 460 POKE 25156+I,35:POKE 25156+I+20,35
SY 470 POKE 25456+I,34:POKE 25456+20+I,34
VL 480 POKE 25756+I,33:POKE 25756+20+I,33
GM 490 NEXT I
WG 500 RESTORE 530:FOR I=0 TO 20
VP 510 READ A:POKE 26056+I,A:POKE 26056+2
   0+I,A
NE 520 POKE 26116+I,103:NEXT I
KR 530 DATA 164,164,165,102,165,102,164,1
   64,164,165,102,164,165,102,164,165,102
   ,165,102,164,164
VL 540 GOSUB 1910:POKE FRAME,0
IR 550 POKE H0,50:POKE V0,30:POKE FLAG,0:
   POKE 53248,50
FR 560 LEVEL=0
WJ 570 GOSUB 1470
LG 580 A=USR(ADR(MC$),PMBASE+768,5):POKE
   559,62
GC 590 A=USR(28940)
EQ 600 POKE 704,238:POKE 705,238:POKE 706
   ,238
IZ 610 POKE 707,56:POKE 711,48
EA 620 SOUND 0,0,0,0:SOUND 1,0,0,0:SOUND
   2,0,0,0:SOUND 3,0,0,0
SW 630 IF PEEK(COLL0)<>0 AND PEEK(V0)<150
    THEN JOLLY=JOLLY-1:POKE 53278,0:GOSUB
    1470:GOSUB 1660
MB 640 IF PEEK(V0)=171 AND PEEK(H0)=203 T
   HEN GOSUB 670:GOSUB 720:GOTO 760
PA 650 GOTO 630
IW 660 REM FINISH LEVEL
RN 670 BONUS=5000-((PEEK(19)*100)+(PEEK(2
   0)*10))
GI 680 IF BONUS<0 THEN BONUS=0
VL 690 SCORE=SCORE+BONUS
ZD 700 RETURN
EX 710 REM FINISH LEVEL0 SOUND
VC 720 FOR I=128 TO 0 STEP -1
NE 730 SOUND 3,I,10,14:NEXT I
ZL 740 RETURN
WW 750 REM LEVEL 2+
RE 760 REM
AK 770 LEVEL=LEVEL+1:POKE 708,(LEVEL*16)+
   14:GOSUB 1470
LZ 780 POKE 559,0
HT 790 IF LEVEL=9 THEN GOTO 1700
BT 800 POKE 704,14:GOSUB 1470
PN 810 IF LEVEL<>1 AND LEVEL<>4 THEN 830
SA 820 A=USR(ADR(MC$),SM,4):A=USR(ADR(MC$
   ),SM+120,4):POKE 26116,0
KJ 830 POKE 709,72:POKE 710,74:POKE 711,7
   6
KT 840 IF LEVEL<4 THEN GOSUB 1130:GOSUB 1
   070
KF 850 IF LEVEL=2 OR LEVEL=3 THEN GOSUB 1
   350
CJ 860 IF LEVEL=3 THEN GOSUB 1420
DT 870 IF LEVEL=5 OR LEVEL=6 THEN GOSUB 1
   130:GOSUB 1070:GOSUB 1350
ED 880 IF LEVEL=6 THEN GOSUB 1420
EH 890 IF LEVEL=4 THEN POKE 26116,41
VH 900 GOSUB 1910
BQ 910 POKE FLAG,1:POKE FRAME,1:POKE V0,0
   :POKE H0,46
VQ 920 A=USR(ADR(MC$),PMBASE+768,5)
IW 930 IF LEVEL=7 THEN GOSUB 1280
EF 940 COUNT=0:POKE 559,62
JY 950 IF PEEK(HIT)>0 THEN JOLLY=JOLLY-1:
   POKE 53278,0:GOSUB 1470:GOSUB 1660:POK
   E HIT,0:IF JOLLY=0 THEN 1810
WK 960 COUNT=COUNT+1:IF COUNT=20 THEN COU
   NT=0:POKE TFLAG1,1:POKE TFLAG2,1
SV 970 IF PEEK(HITM)=2 THEN SCORE=SCORE+1
   00:GOSUB 1550
UJ 980 IF PEEK(HITM)=4 THEN SCORE=SCORE+1
   00:GOSUB 1550
UU 990 POKE HITM,0:POKE 77,0
XG 1000 IF PEEK(MISSILEON)=0 THEN POKE MI
   SSILE+PEEK(MV),0
IF 1010 IF LEVEL=4 AND PEEK(19)=6 THEN GO
   SUB 670:GOTO 760
AF 1020 IF PEEK(H0)<46 THEN POKE H0,46
GG 1030 IF PEEK(H0)>204 THEN POKE H0,204
UN 1040 IF PEEK(V0)>168 AND PEEK(H0)<50 T
   HEN GOSUB 670:GOTO 760
SZ 1050 GOTO 950
XW 1060 REM DRAW OBJECTS LEVEL2
NC 1070 POKE 25156+10,108:POKE 25156+30,1
   08
DB 1080 POKE 25456+12,174:POKE 25456+32,1
   74
MO 1090 POKE 25756+14,237:POKE 25756+34,2
   37
BE 1100 POKE 26056+8,172:POKE 26056+28,17
   2
AE 1110 RETURN
AK 1120 REM DRAW FLOORS
DH 1130 FOR I=0 TO 20
KS 1140 POKE 25216+I,41:POKE 25516+I,41
```

continued

SANTA'S REVENGE

```
KL 1150 POKE 25816+I,41:POKE 26116+I,41
FJ 1160 NEXT I
KM 1170 POKE 25036,42
UB 1180 POKE 25235,0:POKE 25516,0
GL 1190 POKE 25835,0:POKE HIT,0:POKE HITM
    ,0
YK 1200 POKE 26116,0
VS 1210 POKE TFLAG1,1:POKE TFLAG2,1
RZ 1220 IF LEVEL<5 THEN RETURN
FB 1230 FOR I=0 TO 20 STEP 6
FU 1240 POKE 25216+I,105:POKE 25036+I,42
FI 1250 NEXT I
AV 1260 RETURN
HH 1270 REM LEVEL 7 FLOORS
DY 1280 FOR I=0 TO 20
EG 1290 POKE 25516+I,0
EV 1300 NEXT I
DX 1310 FOR I=2 TO 20 STEP 4
JV 1320 POKE 25636+I,42:POKE 25816+I,105
DA 1330 NEXT I:POKE 25816,0:POKE 25835,41
AR 1340 RETURN
XZ 1350 REM DRAW OBJECTS LEVEL2
ZR 1360 POKE 25156+16,108:POKE 25156+36,1
    08
PQ 1370 POKE 25456+18,174:POKE 25456+38,1
    74
RA 1380 POKE 25756+8,237:POKE 25756+28,23
    7
XQ 1390 POKE 26056+14,172:POKE 26056+34,1
    72
AH 1400 RETURN
TO 1410 REM LEVEL3
RY 1420 POKE 25156+4,108:POKE 25156+24,10
    8
HK 1430 POKE 25456+6,174:POKE 25456+26,17
    4
EQ 1440 POKE 25756+2,237:POKE 25756+22,23
    7
YR 1450 POKE 26056+2,172:POKE 26056+22,17
    2:RETURN
IR 1460 REM DISPLAY STATUS
SF 1470 POKE 88,64:POKE 89,102:POSITION 1
    ,1:POKE 87,0
XJ 1480 ? "SCORE ";SCORE;"            LEVEL
    ";LEVEL+1
WM 1490 POSITION 1,2
RV 1500 ? "
            "
YL 1510 IF JOLLY<1 THEN RETURN
UC 1520 POSITION 1,2:? "JOLLY ";JOLLY$(1,
    JOLLY);
AS 1530 RETURN
KV 1540 REM HIT TARGET
DC 1550 GOSUB 1470
CR 1560 IF PEEK(HITM)=2 THEN POKE TFLAG1,
    0:PL=PL1
HN 1570 IF PEEK(HITM)=4 THEN POKE TFLAG2,
    0:PL=PL2
RR 1580 FR=64
IP 1590 I=PEEK(V1)-2:FOR I=I TO I+28
YA 1600 FR=FR-2
IZ 1610 POKE PL+I,0:SOUND 3,FR,10,14
KC 1620 NEXT I:SOUND 3,0,0,0
PU 1630 POKE HITM,0:RETURN
DU 1640 REM HIT OBJECT SOUND
HJ 1650 FOR I=0 TO 25
WO 1660 FOR I=14 TO 0 STEP -1
WI 1670 SOUND 3,128-I,2,I
HH 1680 NEXT I:RETURN
TT 1690 REM GAME COMPLETED
XV 1700 POSITION 0,0:? "CONGRATULATIONS -
     YOU HAVE SAVED XMAS!!";
ZI 1710 POKE 559,62
FF 1720 SOUND 0,0,0,0:SOUND 1,0,0,0:SOUND
     2,0,0,0:SOUND 3,0,0,0
HU 1730 FOR I=0 TO 128 STEP 2
JM 1740 FOR P=160 TO 32 STEP -I
HL 1750 SOUND 0,P,14,10:NEXT P:NEXT I
IC 1760 SOUND 0,0,0,0
HD 1770 GRAPHICS 0:POSITION 2,14:SETCOLOR
     2,0,0:POKE 752,255
DX 1780 POKE 53277,0
QO 1790 GOTO 240
UK 1800 REM  GAME OVER
EO 1810 POKE 84,0:POKE 85,0
EI 1820 ? "SANTA IS SAD.. XMAS HAS BEEN C
    ANCELLED "
DJ 1830 FOR I=128 TO 0 STEP -2
JO 1840 FOR P=160 TO 32 STEP -I
GF 1850 SOUND 0,P,12,10:NEXT P:NEXT I
KK 1860 SOUND 0,0,0,0:POKE 53277,0
VV 1870 FOR I=0 TO 5:POKE 53248+I,0:NEXT
    I
HI 1880 GRAPHICS 0:POSITION 2,14:SETCOLOR
     2,0,0:POKE 752,255
QQ 1890 GOTO 240
HO 1900 REM RESET REGISTERS
IN 1910 FOR I=0 TO 27
DJ 1920 POKE 28900+I,0
TN 1930 NEXT I:POKE FLAG,1
BI 1940 POKE 711,108
OR 1950 POKE SCOUNT,15:POKE FRAME,1
DP 1960 POKE DL+13,68:POKE DL+14,98
NU 1970 POKE DL+43,156:POKE DL+44,100
YB 1980 POKE DL+28,112:POKE DL+29,99
SL 1990 POKE DL+58,200:POKE DL+59,101
JM 2000 POKE 18,0:POKE 19,0:POKE 20,0:RET
    URN
SW 2010 REM SET UP DLI
IC 2020 RESTORE 2100
FH 2030 FOR I=0 TO 32
TO 2040 READ A:POKE 1536+I,A
XR 2050 NEXT I:POKE 512,0:POKE 513,6
NC 2060 POKE 54286,192:RETURN
PB 2070 REM SITCH OFF SOUND
CF 2080 SOUND 0,0,0,0:SOUND 1,0,0,0:SOUND
     2,0,0,0
ZM 2090 SOUND 3,0,0,0:RETURN
ON 2100 DATA 72,138,72,152,72,169,14,141,
    10,212,141,23,208,169,0,141,26,208,141
    ,24,208
KH 2110 DATA 169,224,141,9,212,104,168,10
    4,170,104,64
VT 2120 REM READ MACHINE CODE DATA
NV 2130 RESTORE 2190
XI 2140 FOR I=0 TO 990
WX 2150 READ A:POKE 28940+I,A
FK 2160 NEXT I
AX 2170 RETURN
WE 2180 REM MC DATA
HV 2190 DATA 169,7,160,23,162,113,32,92,2
    28,104,96
QM 2200 DATA 173,9,208,201,0,240,3,141,25
    2,112
BN 2210 DATA 173,245,112,201,0,240,3,76,1
    73
XS 2220 DATA 114,32,50,116,173,241,112,20
    1,0,240,3,76,219,113,169,1,141,241,112
    ,173
NO 2230 DATA 236,112,24,201,12,208,5,169,
    0,141,236,112,24,201,6,144,2,176,44,17
    4
CJ 2240 DATA 229,112,160,0,185,0,144,157,
    0,148,185,25,144,157,0,149,185,50,144,
    157
CA 2250 DATA 0,150,185,76,144,157,0,151,2
    32,200,192,25,208,226,32,153,114,238,2
    36,112
NG 2260 DATA 76,168,113,174,229,112,169,0
    ,160,0,185,101,144,157,0,148,185,126,1
    44,157
OA 2270 DATA 0,149,185,151,144,157,0,150,
    185,176,144,157,0,151,232,200,192,25,2
    08,226
RD 2280 DATA 32,153,114,238,236,112,173,2
    28,112,141,0,208,141,3,208,24,105,8,14
    1,1
NT 2290 DATA 208,24,105,8,141,2,208,24,10
    5,5,141,4,208,238,199,2,173,199,2,201
TK 2300 DATA 64,208,5,169,50,141,199,2,32
    ,227,113,238,236,112,76,98,228,169,0,1
    41
```

```
BS 2310 DATA 241,112,76,98,228,173,245,112,201,0,240,29,173,242,112,201,0,208,43,173
UU 2320 DATA 7,208,201,1,240,37,201,0,240,11,238,251,112,169,0,141,30,208,76,29
XQ 2330 DATA 114,238,229,112,173,245,112,201,0,240,12,169,234,141,5,210,173,229,112,141
FY 2340 DATA 4,210,96,238,48,116,173,48,116,201,3,208,11,169,0,141,48,116,141,5
QF 2350 DATA 210,141,4,210,173,120,2,201,11,208,8,169,130,141,3,210,206,228,112,201
KF 2360 DATA 7,208,8,169,130,141,3,210,238,228,112,201,14,208,32,173,245,112,201,0
SH 2370 DATA 240,19,173,242,112,201,1,240,18,173,7,208,201,0,240,11,169,1,141,242
AD 2380 DATA 112,206,229,112,206,229,112,173,228,112,201,46,208,3,238,228,112,201,204,208
VI 2390 DATA 3,206,228,112,173,229,112,201,30,208,3,238,229,112,201,172,208,3,206,229
VB 2400 DATA 112,169,0,141,30,208,96,169,0,174,229,112,157,10,147,157,13,147,169,1
HR 2410 DATA 157,11,147,157,12,147,96,32,50,116,32,164,116,238,232,112,173,232,112,201
ES 2420 DATA 2,240,11,169,0,141,3,210,141,2,210,76,101,115,169,0,141,232,112,238
CC 2430 DATA 246,112,173,246,112,201,2,208,5,169,0,141,246,112,32,155,115,32,227,113
GP 2440 DATA 173,231,112,168,185,43,116,168,24,105,23,141,47,116,174,229,112,185,201,144
NH 2450 DATA 157,0,151,185,224,144,157,0,148,232,200,204,47,116,208,237,173,228,112,141
CE 2460 DATA 0,208,141,3,208,173,233,112,201,1,240,8,169,1,141,233,112,76,35,115
AS 2470 DATA 169,0,141,233,112,173,120,2,201,15,240,59,169,0,173,120,2,201,11,240
MR 2480 DATA 30,201,7,240,3,76,98,228,173,233,112,201,1,208,8,169,1,141,231,112
HT 2490 DATA 76,101,115,169,0,141,231,112,76,101,115,173,233,112,201,1,208,8,169,2
LC 2500 DATA 141,231,112,76,101,115,169,3,141,231,112,32,155,115,173,242,112,201,0,240
GO 2510 DATA 41,238,242,112,173,242,112,201,8,240,26,24,173,231,112,201,2,144,6,206
CD 2520 DATA 228,112,76,138,115,238,228,112,206,229,112,206,229,112,76,226,114,169,0,141
XZ 2530 DATA 242,112,76,98,228,173,234,112,201,1,240,11,173,132,2,201,1,240,3,32
WR 2540 DATA 236,115,96,174,236,112,173,235,112,141,5,208,141,0,210,173,237,112,201,1
NX 2550 DATA 176,22,238,235,112,173,235,112,201,218,208,11,169,0,141,234,112,141,0,210
LJ 2560 DATA 141,1,210,96,206,235,112,173,235,112,201,45,208,11,169,0,141,234,112,141
DB 2570 DATA 0,210,141,1,210,96,174,236,112,169,0,157,0,147,24,173,229,112,105,8
MW 2580 DATA 141,236,112,173,228,112,105,4,141,235,112,169,1,141,234,112,174,236,112,169
ZG 2590 DATA 255,157,0,147,169,202,141,1,210,24,173,231,112,201,2,144,6,169,1,141
LZ 2600 DATA 237,112,96,169,0,141,237,112,96,0,46,92,138,0,0,0,206,238,112,173
IX 2610 DATA 238,112,201,255,208,8,32,72,116,169,7,141,238,112,141,4,212,96,24,238
GZ 2620 DATA 245,128,144,3,238,246,128,24,238,19,129,144,3,238,20,129,24,238,4,129
FI 2630 DATA 144,3,238,5,129,24,238,34,129,144,3,238,35,129,238,243,112,173,243,112
BR 2640 DATA 201,20,208,45,169,0,141,243,112,169,68,141,245,128,169,98,141,246,128,169
BP 2650 DATA 156,141,19,129,169,100,141,20,129,169,112,141,4,129,169,99,141,5,129,169
IB 2660 DATA 200,141,34,129,169,101,141,35,129,96,174,247,112,173,230,112,141,1,208,173
FH 2670 DATA 249,112,141,2,208,160,0,173,0,113,201,0,240,6,185,143,145,157,0,149
AH 2680 DATA 173,255,112,201,0,240,6,185,129,145,157,0,150,232,200,192,14,208,224,238
LA 2690 DATA 247,112,238,230,112,206,249,112,238,193,2,238,194,2,96
GJ 2700 DATA 169,3,141,29,208,169,300
EY 2710 DATA 300
ON 2720 REM READ DLIST DATA
RT 2730 RESTORE 2790
HW 2740 FOR I=0 TO 71
KG 2750 READ A:POKE 33000+I,A
FW 2760 NEXT I
BJ 2770 RETURN
WZ 2780 REM DL DATA
XO 2790 DATA 112,112,112,70,144,97
WO 2800 DATA 70,204,97,70,8,98,86,68,98
DC 2810 DATA 70,128,98,70,188,98,70,248,98,70,52,99,86,112,99,70,172,99
QZ 2820 DATA 70,232,99,70,36,100,70,96,100,86,156,100,70,216,100
SU 2830 DATA 70,20,101,70,80,101,70,140,101,86,200,101,198,4,102
YU 2840 DATA 66,64,102,2,2,2,65,232,128
KB 2850 REM LOAD PM SHAPE DATA
PA 2860 RESTORE 2920
QW 2870 FOR I=0 TO 412
UQ 2880 READ A:POKE PMBASE+I,A
PN 2890 SOUND 0,A,14,10
GQ 2900 NEXT I:RETURN
SS 2910 REM PM SHAPE DATA
NC 2920 DATA 0,32,0,0,0,16,24,12,128,128,128,128,195,195,227,255,255,255,255,193,64,32,255,255,0
HG 2930 DATA 0,0,1,1,1,0,0,0,0,16,23,15,15,143,207,207,231,230,198,2,163,97,225,192,0
IP 2940 DATA 0,0,16,16,136,72,80,48,32,112,104,252,252,238,228,224,96,48,16,24,8,140,140,0,0,0
LD 2950 DATA 0,0,48,120,120,96,96,114,115,126,124,112,48,48,16,0,0,0,0,0,0,0,0,0
KL 2960 DATA 0,0,32,0,0,0,16,24,140,128,128,128,195,195,227,255,255,255,255,193,64,32,255,255,0
BX 2970 DATA 0,0,1,1,1,0,0,0,0,16,23,15,15,143,207,207,231,230,198,2,162,102,228,192,0
UR 2980 DATA 0,0,16,16,136,72,80,48,32,112,104,252,252,238,228,224,96,48,16,16,16,48,96,0,0
HK 2990 DATA 0,0,0,48,120,120,96,96,112,114,127,124,48,48,16,0,0,0,0,0,0,0,0,0
```

continued

SANTA'S REVENGE

```
ZK 3000 DATA 0,0,48,120,120,96,224,242,24
   3,254,252,240,0,240,144,144,144,0,144,
   0,0,0,0
OU 3010 DATA 0,32,0,0,0,16,24,12,0,0,0,0,
   240,0,0,0,0,144,0,216,0,0,0
IB 3020 DATA 0,0,48,120,120,96,224,242,24
   3,254,252,240,0,240,144,136,136,128,72
   ,0,0,0,0
ZE 3030 DATA 0,32,0,0,0,16,24,12,0,0,0,0,
   240,0,0,0,0,72,0,108,0,0,0
ZT 3040 DATA 0,0,12,30,30,6,7,79,207,127,
   63,15,0,15,9,9,9,0,9,0,0,0,0
MS 3050 DATA 0,4,0,0,0,8,24,48,0,0,0,0,15
   ,0,0,0,0,9,0,27,0,0,0
JZ 3060 DATA 0,0,12,30,30,6,7,79,207,127,
   63,15,0,15,9,17,17,1,18,0,0,0,0
TM 3070 DATA 0,4,0,0,0,8,24,48,0,0,0,0,15
   ,0,0,0,0,18,0,54,0,0,0
PH 3080 DATA 0,255,255,199,219,219,219,19
   9,219,219,219,255,255,0
IB 3090 DATA 0,0,112,240,206,204,192,204,
   206,240,112,0,0,0
EK 3100 DATA 300
PZ 3110 REM LOAD CHARACTER SET
LV 3120 RESTORE 3150
DV 3130 CHBASE=35840
DL 3140 CH=33:GOSUB 3390
MG 3150 DATA 8,28,28,62,62,28,28,8
EB 3160 CH=34:GOSUB 3390
LA 3170 DATA 0,8,28,28,28,28,8,0
ER 3180 CH=35:GOSUB 3390
UC 3190 DATA 0,0,8,28,28,8,0,0
EF 3200 CH=36:GOSUB 3390
MN 3210 DATA 0,0,0,0,16,56,124,255
EV 3220 CH=37:GOSUB 3390
DO 3230 DATA 1,3,7,15,31,63,127,255
FL 3240 CH=38:GOSUB 3390
AB 3250 DATA 128,192,224,240,248,252,254,
   255
DI 3260 CH=41:GOSUB 3390
FC 3270 DATA 255,0,187,170,170,187,0,255
ES 3280 CH=44:GOSUB 3390
JE 3290 DATA 127,93,107,54,54,54,20,20
EQ 3300 CH=46:GOSUB 3390
DW 3310 DATA 7,0,7,7,7,31,63,62
EM 3320 CH=45:GOSUB 3390
KU 3330 DATA 28,8,8,28,28,28,28,28
FX 3340 CH=39:GOSUB 3390
MI 3350 DATA 255,255,255,255,255,255,255,
   255
DU 3360 CH=42:GOSUB 3390
CE 3370 DATA 255,0,189,189,189,189,0,255
BF 3380 RETURN
QN 3390 FOR I=0 TO 7:READ D
PR 3400 POKE CHBASE+(CH*8)+I,D:NEXT I
AM 3410 RETURN
GC 3420 REM MC CLEAR ROUTINE
LM 3430 DIM MC$(31):RESTORE 3470
EV 3440 FOR I=1 TO 30
DX 3450 READ A:MC$(I,I)=CHR$(A)
GZ 3460 NEXT I:RETURN
TS 3470 DATA 104,104,133,204,104,133,203,
   104,104,133,205,162,0,169,0,160,0,145,
   203,200
TU 3480 DATA 208,251,230,204,232,228,205,
   208,242,96
```

TYPO 3

HOW TO TYPE IN THE LISTINGS *AND GET THEM RIGHT FIRST TIME!*

OUR UNIQUE LINE BY LINE CHECKER WORKS ON ALL ATARI XL/XE and earlier 8-bit machines

NOW RESET PROOF!

Here is an amended version of our TYPO 3 program which we recommend that all readers use when typing in programs. This version is fully compatible with earlier versions but is now 'Reset proof' so that if you press the System Reset key you will not loose the TYPO facility.

If you have already typed in TYPO the changes are shown in the panel below and can simply be added to your original program.

WHAT TYPO IS ALL ABOUT

The program listings in NEW ATARI USER are prepared carefully to ensure that they can be typed in as easily as possible. Before typing any listings ensure that you are familiar with the use of the Shift and CONTROL and INVERSE keys as outlined in your computer manual. The listings are prepared to match exactly what you see on screen. By using TYPO 3 you can ensure that you type in the programs EXACTLY as they are printed. Remember, a single typing mistake may mean a program will not run.

WHAT ARE THOSE CODES?

Each line of a program printed in NEW ATARI USER begins with a special two letter code. THESE SHOULD NOT BE TYPED IN. They are used by the program TYPO to check that you have typed each line correctly. IF YOU HAVE NOT ALREADY TYPED IN THE TYPO 3 LISTING PLEASE DO SO NOW. The program can be used as you type in each line of a program or to check an already typed program. The code for each line will match but if you have problems check the control characters shown in your manual, you are most probably typing a CONTROL character incorrectly. TYPO 3 cannot check whether a line has been missed so if the TYPO codes match and you still have problems in running a listing count the lines in the program and ensure none are missing. If the TYPO codes match, there are no missing lines and the program still does not run, LIST it to cassette or disk using LIST "C:" or LIST "D:filename", switch off the computer, re-boot and then ENTER the program using ENTER "C:" or ENTER "D:filename". Save this version in the normal way.

HOW TO USE TYPO 3

1. Type in the listing carefully for although you can use TYPO 3 to check itself (see 6 below) it may not work if you have made mistakes.

2. SAVE or CSAVE a copy of the program.

3. Each time you want to type in a program listing RUN TYPO 3 first. The program will install a machine code routine in memory and then delete itself. Now type in a line as shown in the magazine excluding the first two letter code and press RETURN.

4. A two letter code will appear at the top left of your screen. If this code matches the one in the magazine carry on and type the next line. Note, the code will not match if you use abbreviations. If you prefer to use abbreviations LIST the line you have just typed, move the cursor to that line and press RETURN. The code should now match.

5. If the code does not match, use the editing keys to correct the line and press RETURN again. Repeat if necessary until the codes match.

6. To check a line you have already typed LIST the line, place the cursor on that line and press RETURN.

7. When you have finished a listing just SAVE or CSAVE it in the normal way.

You can type in a program without using TYPO 3 and then check it by SAVEing or CSAVEing a copy of the program, running TYPO 3 and then LOADing or CLOADing your program and proceeding as in step 6 above.

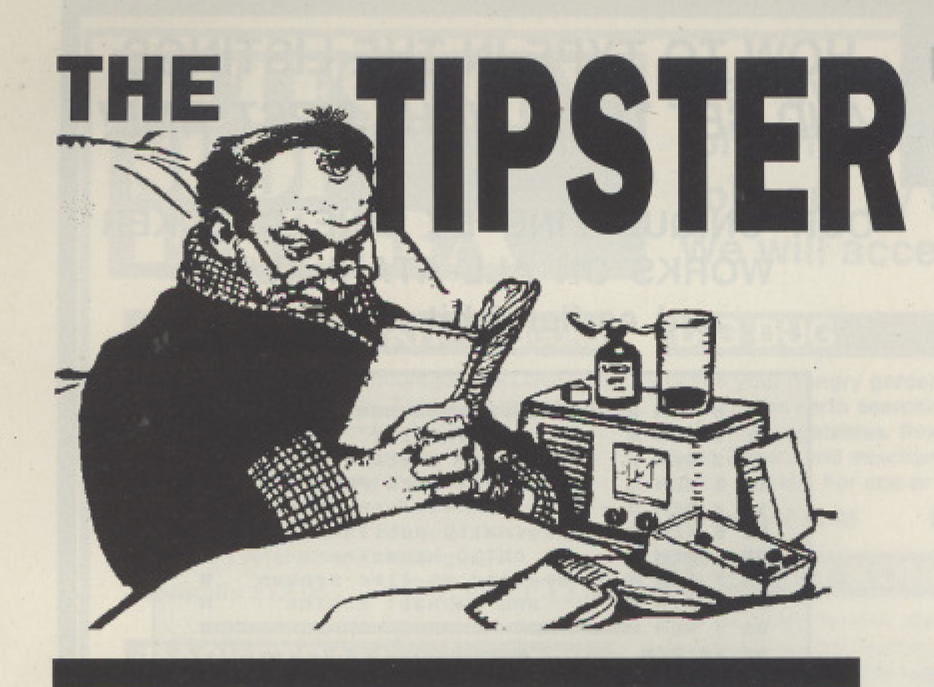
Always SAVE or CSAVE a program before running it and always use TYPO before telling us that a program will not run.

```
CR 0 REM ##################################
NE 1 REM #          TYPO III              #
ST 2 REM #    An Error Checker for        #
EL 3 REM #   NEW ATARI USER PROGRAMS      #
SF 4 REM # ------------------------------ #
ME 5 REM #   Originally published by      #
VP 6 REM #        ANTIC Magazine          #
ZX 7 REM #    Updated by Alec Benson      #
EE 8 REM #      and Raphael Espino        #
DA 9 REM ##################################
AY 10 REM
SG 100 GRAPHICS 0
FH 110 TRAP 500:FOR I=1536 TO 1791:READ A
   :IF A<>INT(A) THEN POP :GOTO 500
KH 115 CK=CK+A:POKE I,A:NEXT I
CG 120 IF CK<>30765 THEN ? "Error in DATA
    statements - Check Typing":END
YM 130 A=USR(1536)
BN 135 POKE 9,3:POKE 2,1:POKE 3,6
VT 140 ? :? "TYPO III is up and running":
   NEW
BW 500 IF PEEK(195)=6 THEN ? "NOT ENOUGH
   DATA STATEMENTS PLEASE     CHECK LINES
    1000 TO 1310":END
GS 510 ERRLINE=PEEK(183)+256*PEEK(184):ER
   RNUM=PEEK(182)
JQ 520 ? "ERROR IN STATEMENT ";ERRNUM+1;"
    IN THE FOLLOWING LINE":? :LIST ERRLIN
   E
OA 530 END
MA 1000 DATA 104,160,0,185,26,3,201,69
HG 1010 DATA 240,8,200,200,200,192,36,208
QB 1020 DATA 242,96,200,169,79,153,26,3
RK 1030 DATA 200,169,6,153,26,3,162,0
RR 1040 DATA 189,0,228,157,79,6,232,224
TO 1050 DATA 15,208,245,169,93,141,83,6
KC 1060 DATA 169,6,141,84,6,173,4,228
EU 1070 DATA 105,0,141,95,6,173,5,228
BK 1080 DATA 105,0,141,96,6,169,0,162
KK 1090 DATA 3,149,203,202,16,251,96,0
ZR 1100 DATA 0,0,0,0,0,0,0,0
LD 1110 DATA 0,0,0,0,0,0,32,94
JM 1120 DATA 6,8,72,201,155,240,55,230
TV 1130 DATA 203,133,209,138,72,169,0,133
TW 1140 DATA 208,162,8,10,38,208,6,209
MF 1150 DATA 144,7,24,101,203,144,2,230
RL 1160 DATA 208,202,208,239,133,207,24,1
   65
TM 1170 DATA 204,101,207,133,204,165,205,
   101
AW 1180 DATA 208,133,205,165,206,105,0,13
   3
XH 1190 DATA 206,104,170,104,40,96,138,72
NR 1200 DATA 152,72,162,0,134,207,134,208
GF 1210 DATA 160,24,6,204,38,205,38,206
EA 1220 DATA 38,207,38,208,56,165,207,233
TM 1230 DATA 164,170,165,208,233,2,144,4
SK 1240 DATA 134,207,133,208,136,208,227,
   162
CB 1250 DATA 0,165,207,133,204,165,208,6
XN 1260 DATA 204,42,201,26,144,4,233,26
MB 1270 DATA 230,204,202,208,242,133,205,
   169
BC 1280 DATA 128,145,88,200,192,40,208,24
   9
WV 1290 DATA 165,204,105,160,160,3,145,88
QA 1300 DATA 165,205,24,105,161,200,145,8
   8
MQ 1310 DATA 32,69,6,104,168,76,153,6
```

TYPO 3 - IMPORTANT

TYPO 3 now has improved error checking routines when typing the listing in. When you first run the program most typing errors will be indicated on screen. Amend the line shown and save the program again before running it. This is important since TYPO will delete itself when successfully run and you will lose the program unless you have saved it!

THE TIPSTER



TAKE MY TIP YOUNG MAN

Hi there, this is the all new Tipster writing for the first time. I'll bring you all the best hints 'n' tips for your favourite shoot'em ups and adventures alike just as before. This time round though I'll start off by apologising for any mistakes and misdemeanours which will probably happen in this first column but please bear with me as I'm only small!

The first complete solution of this new column is for GUNSLINGER. I haven't had many solutions (none in fact!) for Public Domain adventures or perhaps The Domes of Sha or The Jade Stone (they can't be that hard can they?) so get writing as its your help that keeps this column going and therefore helps other people. But enough of this chit chat and on with the show ....

UNIVERAL HERO

Firstly I must put to rest the controversy that surrounds UNIVERSAL HERO from Mastertronic. I've had mountains of letters about how to finish the game and the answer is - YOU CAN'T. When you try to enter the I.D. on the computer it comes up with an "ERROR 164" and crashes. This is because it was ported across from another computer but doesn't work. Nice one Mastertronic!

'THIS IS THE COMMANDER'

NATO COMMANDER should no longer pose a problem for you people who like to dice with death thanks to Richard Legge of Aberdeen. To launch nuclear missiles without having to ask for the commanders permission change line 3241

From: 3241 IF NUK OR VP<-K256.........
To: 3241 IF NUK OR VP>-K256.........

This will allow you to launch nuclear missiles at any part of the game.

COSMIC PIRATE

Also from Richard are these additional tips for COSMIC PIRATE and Winter Olympiad. In COSMIC PIRATE if you're in debt because you have to restart missions, then on the options screen press reset and you will then be paid up. This works even though you have completed some missions so you can carry on from the mission which you left.

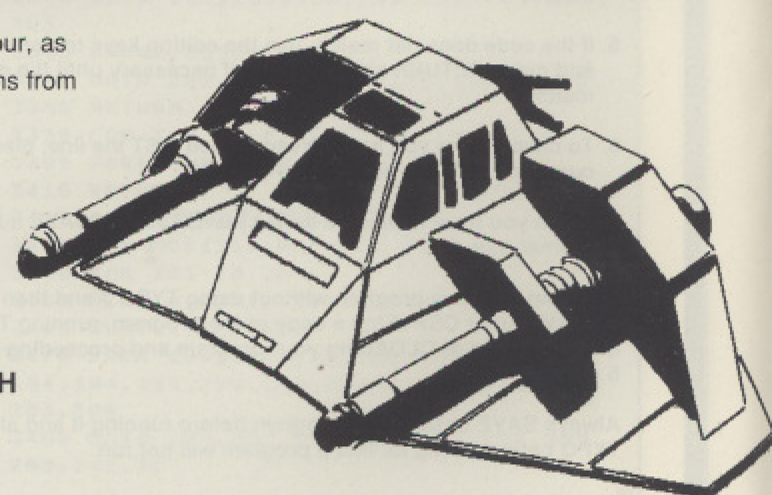
WINTER OLYMPIAD

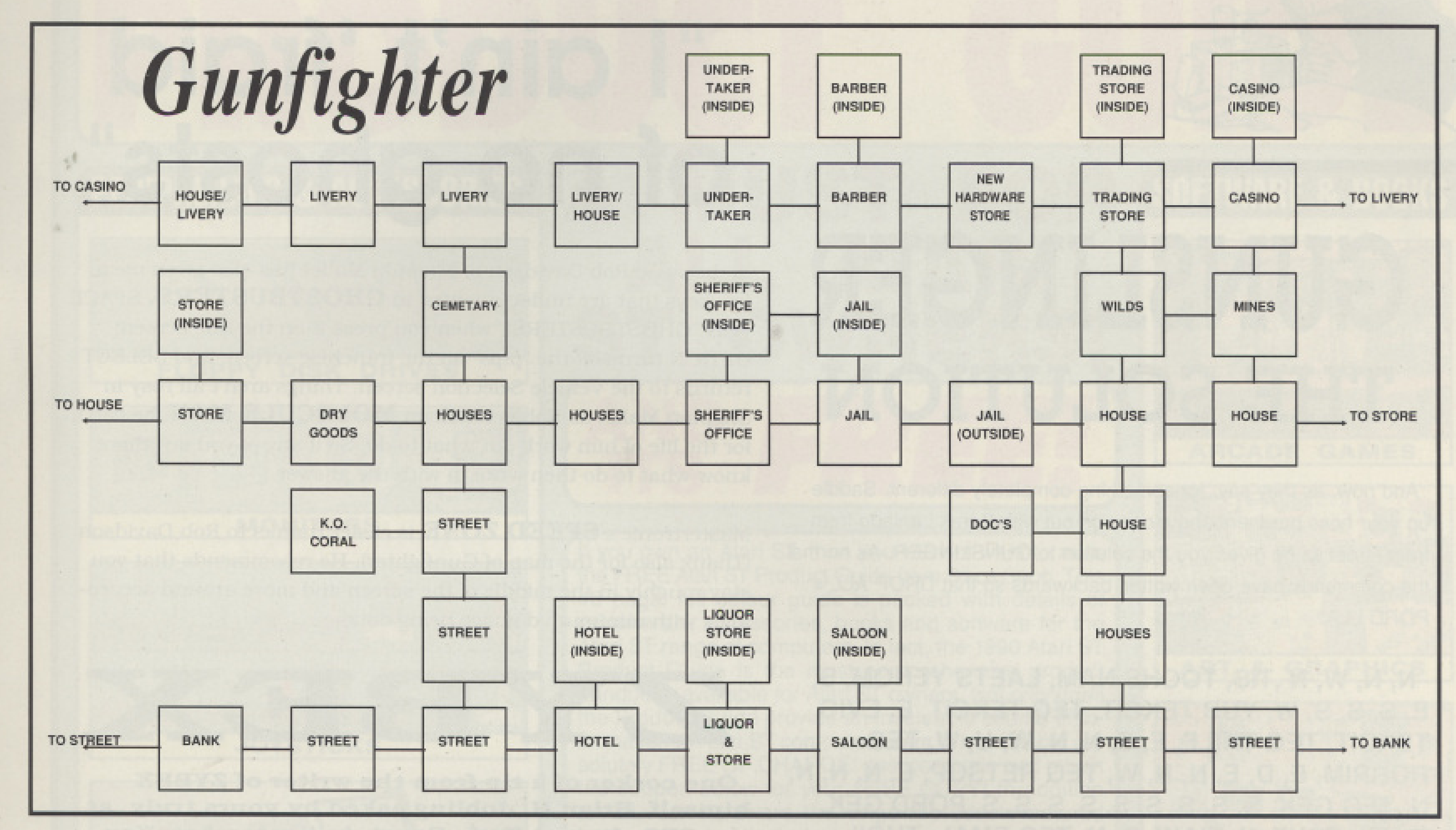
When you choose the option to load the next event in WINTER OLYMPIAD select it and the medal table will appear. Press RESET, then have another go. Your medals will increase allowing you to have infinite medals if you repeat this process.

SPEED ACE

From across the water comes the Grand Prix riders saviour, as Andrew Scase from Belfast gives all those twists and turns from Zeppelin's SPEED ACE.

Brands Hatch R-R-L-L-R-R-R-L-L-FINISH
Daytona L-R-L-L-R-L-L-L-L-R-L-L-L-L-FINISH
Jarma R-R-R-L-L-R-L-R-R-L-R-L-L-R-R-FINISH
Monza R-L-L-L-R-L-R-L-R-FINISH
Paul Ricard L-R-L-R-L-R-R-L-R-L-R-FINISH
San Marino R-L-R-L-R-L-R-R-R-L-R-R-L-L-FINISH
Silverstone R-L-R-L-R-R-L-R-FINISH
Anderstoorp R-L-L-R-L-R-R-R-FINISH





MORE OVERLEAF ☞

DON'T BE SHY!

Now comes a clutch of tips from an anonymous tip provider from Naxxar in Malta (its all right you'll get your badge!) Firstly the passwords for screens 5,9,15 and 19 of **OLLIES FOLLIES.** They are FRANK, FANDA, NORBI and ZOOOM respectfully. For all you Bruce Lee's out there here is how to complete the second level in **KARATEKA**. Position your player with just your foot touching the shadow of the door, then either kick or punch and the door falls down, after a few moments it will go up so pass now. If you touch the door you will loose some health points. Also if you arrive near the princess, run towards her otherwise she will kick you and kill you. Press the SPACE BAR and B and the player will bow.

Is there something wrong with me? Do my feet smell or something?, because here is a trilogy of tips from another reader who wishes to remain anonymous, this time from Youghal, County Cork.

DEATH RACE - keep tour speed to around 250mph. Keep to the left hand side of the track and only dodge cars when you have to.

STAR WARS - on any of the trenches stay as low as possible and then blast a couple of shots down the tube et voila!

Last but not least comes ...

PANTHER where if you get down low and only shoot when the aliens do, as they only shoot when they are on the same level as you.

PRICE OF MAJIK

Deep from the depths of Telford comes the spells for PRICE OF MAJIK from Craig Wright. He says it helps incredibly that you know the spells but don't take his word for it have a go yourself!

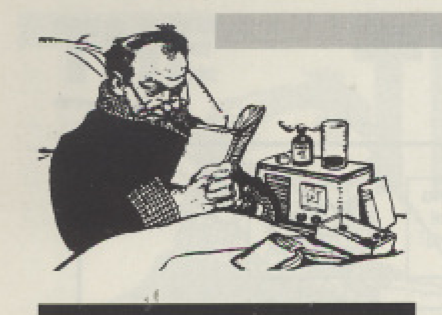
FOCUS	SPELL	FOCUS	SPELL
Crystal ball	ESP	Grimoire	MAD
Pendulum	DOW	Broom	FLY
Prism	XAM	Trumpet	BOM
Feldspar lens	SEE	Ashes	ZAP
Staff	HYP	Cross	DET
Candle	SPY	Axe	KIL
Wheel	DED	Boxl	BM
Claw	SAN	Valerian	FIX
MirrorL	IT/ZEN		

AND THE WINNER IS ...

This issue's prize goes to Rob Davidson so Shepton Mallet will soon be echoing to the sound of those magic AIR DRUMS. Apologies to Rob's mum and dad!

For the next lot of hints and tips we have on offer A 12-GAME COMPENDIUM SET which gives you the chance to play all your favourite board games wherever you are - includes Roulette, Backgammon, casino Craps, Chess, Draughts, Pool, Black Jack, Cribbage, Dominoes, Chinese Checkers, Straight (Mill) and Surround. It's all packed away in a special presentation box. You'll probably never touch your computer again!

To stand a chance of getting this prize you must send in your hints, tips, solutions or maps for the next issue. Get moving!



GUNSLINGER
THE SOLUTION

And now, as they say, for something completely different. Saddle up your hoss pardners and mosey on out with Barak Laniado from from Israel as he gives you the solution to GUNSLINGER. As normal the commands have been written backwards so that DROP ALL = PORD LLA.

N, N, W, N ,TIS, TOOHS NAM, LAETS YENOM, S, E, S, S, S, W, YUB TEKCIT, TEG TEKCIT, E, EVIG TEKCIT, TEG TNILF, E, E, N, N, W, U, W, TEG RORRIM, E, D, E, N, N, W, TEG RETSOP, E, N, N, N, N, TEG GEK, S, S, S, S, S, S, S, S, PORD GEK, THGIL ESUF, N, TIAW, D, N, TEG PMAL, THGIL PMAL, N, W, N, TEG EXA, S, E, N, E, THGILNU PMAL, N, GID, TEG LATSYRC, S, THGIL PMAL, W, S, OG RAC, TIAW, TIAW, TIAW, EKARB, TIAW, TIAW, PORD TNILF, PORD PMAL, PORD EXA, U, U, NWOD FFILC, S, S, S, S, S, S, S, S, E, EVIG LATSYRC, TEG XOB, W, W, W, HCRAES DLOG, TEG TEGGUN, E, E, E, EVIG TEGGUN, TNUOM ELUM, W, N, N, N, N, N, N, N, N, U, E, D, N, N, N, N, EVIG RETSOP, EVIG RORRIM, S, S, E, E, E, TNUOMSID, OG EONAC, TIAW, TIAW, KCUD, BMILC HCNARB, E, E, N, N, N, W, W, TEG ESUF, RAEW ESUF, (TA SIHT EGATS, OUY DLUOHS TEG THGUAC ROF GNILAETS EHT EPOR. TSUJ KLAW DNUORA ROF TUOBA YTNEWT SNRUT, LITNU UOY DNIF FLESRUOY NI A NOSIRP LLEC), TIAW, TIAW, TIAW, TIAW, TEG NOOPS, TEG LWOB, KNIRD PUOS, TIAW, TIAW, TIAW, TIAW, TIAW, TEG ETTERAGIC, U, GID LLAW, OG GNINEPO, EIT ESUF, D, THGIL ESUF, N, E, OG NIART, U, TIAW, D, NEPO ROOD, E, E, E, N, N, N, N, N, N, N, N, E, E, KLAT NAM, W, W, S, S, S, S, S, W, TEG ELFIR, TNUOM ESROH, E, E, N, TNUOMSID,(NIAGA, UOY NAC EKAT A KLAW, TUB YOU DLUOHS NRUTER OT SIHT YELLA SA NOOS SA UOY RAEH EHT SLLEB GNIGNIR), W, N, E, E, KOOL NRETSEW WODNIW, TOOHS EPOR, OG NREHTUOS WOD-NIW. SIHT SI TI!!!!! UOY EVAH TSUJ DETELPMOC "REGNILSNUG"!!!!!

QUICKIES ... QUICKIES ... QUICKIES ...

A quickie from Simon Bostock of Lychpit Basingis for TIMESLIP. If you miss an orb, crash and get the orb again, this saves you going over the same ground twice.

"I ain't 'fraid of no ghosts"

.... because Rob Davidson of Shepton Mallet has also given me a few keys that are undocumented in **GHOSTBUSTERS.** SPACE yells "GHOSTBUSTERS!" when you press it on the title screen; OPTION turns off the "pips" on the franchise screen; and SELECT returns to the Vehicle Selection screen. Things aren't all rosy in Shepton Mallet as Rob is stuck on **MOLECULE MAN**, he can't, for the life of him work out what to do. So if any of you out there know what to do then write in with the answer.

Mastertronic's **SPEED ZONE** is easier thanks to Rob Davidson (Thanx also for the map of Gunfighter). He recommends that you stay roughly in the middle of the screen and move around accordingly with minimum damage being done.

ZYBEX

One corker of a tip from the writer of ZYBEX himself, Brian H. Jobling asked by yours truly, at the CES show at Earls Court, in September. You can have all the weapons at any time by pressing the OPTION button but this only works if you've got an OMNIMON chip (sorry!).

HELP!!

There are a lot of stuck people out there and they need your help! Kevin Cooke needs help on **LAPIS PHILOSOPHORUM,** especially with how to get past the guards and out of the city. Yasser Nabi of Southend-on-Sea would like some help with **SPY HUNTER** and **GUNLAW**. **GRAND PRIX SIMULATOR** from Codemasters is causing problems for Amjid of Keighley. He wants to know if there is a way to start on the level you left off from.

This months Tipster prize goes to Rob Davidson for his map of Gunfighter and tips for Speed zone and Ghostbusters. Don't despair as no-one can win the prize twice (I'll make sure of that).

Well that's about it for this issue, but never fear I'll be back next time with all your best hints and tips and with another solution to an adventure. If you've completed a game or have any hints on game play then send them in as this is your column, for your genius.

I'm off write now to give those nasty aliens some electric death they won't forget in a hurry so until next time, T.T.F.N.

Please send all your hints 'n' tips to:

THE TIPSTER
New Atari User
P.O. BOX 54
STAFFORD
ST16 1DR

DEAD-RECKONING FLIGH

ALAN PAGE SHOWS YOU HOW TO COPE IF YOU K

Flight Simulator II by Sub-Logic needs no introduction to readers of NEW ATARI USER. For leading articles see issues 21, 28, 40 and 43-45. For the uninitiated, FSII is a real-time flight simulator, i.e. a flight of 45 minutes actually takes 45 minutes at the key-board. It faithfully reproduces the flight characteristics of the aircraft in use, which is a Piper Cherokee Archer on the 8-bit Atari, or a choice of Learjet or a Cessna 182 on the ST, and is as near as most of us are likely to get to piloting a real aircraft.

The manuals provided are very thorough, especially in the 8-bit version, including a basic grounding in flight physics and a series of flying lessons. The one real gap though, is basic navigation by dead-reckoning, and this is a gap which I shall try to fill.

In real life the speed and direction of the wind varies at different heights, and in FS2 this too can be preset from an easy to use editor. But strong winds can drift an aircraft way off course, and even with the excellent radio navigation included in FSII, the serious arm-chair pilot likes to know in which direction to point his nose in order to obtain the correct course from A to B. In this article I shall try to demonstrate a reasonably straightforward way of doing this by a time-honoured graphical method, and also provide a program listing which will do it all for you. After all, what else is the serious arm-chair pilot's computer for?

FIGURE 1

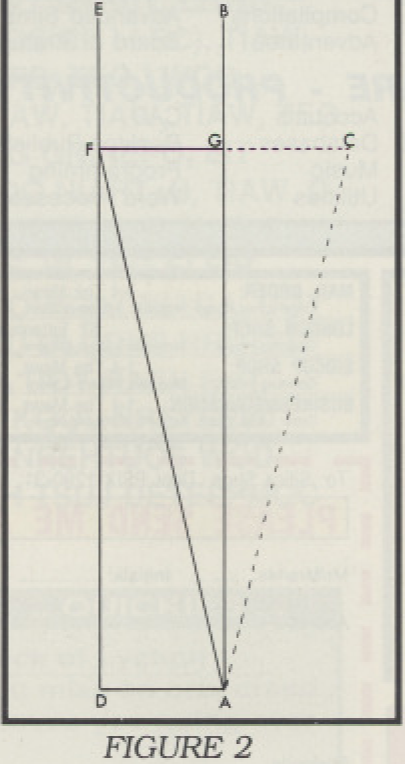


FIGURE 2

"DEAD RECKONING"

This method of navigation makes use of the "triangle of forces", which may still be found lurking in old Maths and Physics text books. To try out the examples for yourself, you will need a sharp pencil, a protractor for measuring angles and a ruler with an accurate centimetre and millimetre scale. I find that a pencil-rubber also comes in very handy!

Now, how does the wind affect the flight path of an aircraft? Suppose that you wish to fly North from A to B at 130 knots for one hour. After one hour you would expect to be exactly 130 nautical miles North of your starting point. But suppose that there is a 30 knot wind blowing from the West. The body of air through which your aircraft is flying is itself travelling West at a speed of 30 knots. The actual course followed by the aircraft will be the combination of your northerly heading and the westward movement of the air, as shown in diagram 1, ending up at C, some 30 nautical miles to the East of your intended destination.

By drawing accurately to scale we can build on diagram 1 and use it to predict what heading to fly the aircraft in order to end up at our intended destination, B.

Choose a convenient scale, such as 1mm=1knot. First, draw your desired course from A, in the South, to B, in the North. Precise length is not important for this line, but make it about 14cm long. Now draw a line to represent the 30 knot wind, starting at A, draw it in the direction from which the wind is coming. Draw this line exactly 3cm long to represent 30 knots. This is line AD in diagram 2.

From point D draw a line DE, exactly parallel to your desired course, AB. Now place a ruler so that the zero on the ruler coincides with your starting point A. Always keeping the zero at A, rotate the ruler so that it crosses line DE. At the point where 13cm on the ruler (to represent your airspeed) exactly crosses the line DE, stop rotating the ruler and draw a connecting line from A to DE. Where it crosses the line, we shall call F, as shown in diagram 2.

The direction of this line is precisely the compass heading which the aircraft must fly so that its track over the ground coincides with the desired course AB.

One more useful piece of information can be gleaned from the diagram. Draw a line from F, keeping parallel to the wind vector AD, so that it crosses the course, AB. Let's call this intersection G. The length of the line AG represents the actual speed, in knots, of the aircraft over the ground, i.e. its groundspeed. The groundspeed, which represents the aircraft's true progress, is the combination of its airspeed and the influence of the wind.

Well done. You have constructed a parallelogram of forces by adding the aircraft and wind vectors. A vector is a quantity which has both a magnitude and a direction.

GHT NAVIGATION

YOU KEEP ENDING UP AT THE WRONG DESTINATION

With angles other than 90 degrees the result will be a true parallelogram, rather than a rectangle.

Now measure the line AG. It should be exactly 12.69cm long, which means that the aircraft's groundspeed will be 126.9 knots. The time required to reach your destination is then easily calculated, since flight time=distance/speed.

THE PROGRAM

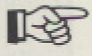
And now the good news for those of you who do not get their jollies from painstaking drawings. The Sub-Logic Aircraft Corporation, with startling foresight, has equipped every crew room with an Atari computer, a copy of FSII and a copy of the navigation program shown in the listing.

On boot up, an appropriate signature tune is played. When you have heard enough, just press START. The program is designed to be easy to use and consists of a simple Graphics 1 screen containing the required information prompts, which appear one at a time, and the results of the calculations are finally displayed at the bottom of the screen. For printer owners, there is an option to print out all the details included in the screen display. NOTE: All distances must be in nautical miles, and all speeds in knots.

You are asked to enter the compass bearings of the desired course and of the wind, together with the airspeed of the aircraft and the windspeed. Take care when entering the compass bearing of the wind. There is a long standing convention that the compass direction that is always quoted is the direction from which the wind is COMING FROM. Enter this when asked for the wind bearing. For example, an East wind is blowing from the East. Here you would enter 90 degrees.

The compass bearing of the chosen destination can be found from the FSII aeronautical map by careful use of a protractor. Make sure that the 0 degree line on the protractor is aligned with 0 degrees on the compass roses printed on every VOR beacon. Alternatively, if the destination airfield is equipped with a VOR beacon, and is within radio range of the starting point, sit at the start and tune in NAV1. Then adjust the omnibearing indicator until the vertical line is exactly in the middle and the instrument displays 'TO'. The compass bearing on the instrument is the required bearing to enter into the navigation program, and the DME displays the distance in nautical miles. Alternatively, a nautical mile scale is printed on the aeronautical map for measuring distances.

What happens if the wind is travelling faster than the aircraft? Just enter the figures, and see.

PROGRAM OVERLEAF 

THE LISTING DETAILS

The essentials of the program are fairly short, ending at line 3130. Thereafter, the masses of DATA statements are only included for the music. If this is of no interest, and you are looking for a way to ease those throbbing finger tips, ignore all lines from 4000 onwards. Alternatively, just type in some of the music data, including the sub-routine at lines 4000-4085, but make sure that the FOR loop at line 4010 matches the number of DATA statements which you have included.

Variable names are a bit long-winded (no pun intended, honest!) so that the calculations will be fairly straightforward to interpret. Lines 270-310 calculate the ANGLE to add or subtract to the COURSE in order to obtain the HEADING to fly. There follows much IFfing and butting to decide whether to add this correction, or to subtract it. Just one of the complications of working with a 360 degree compass!

The calculations make use of the trigonometric sine function, however, Atari Basic does not include Arcsine, which converts a sine back to an angle. Fortunately, it does include Arctan, which converts tangents back to angles, so two simple relationships are made use of:

(i) SIN(a)/COS(a)=TAN(a)

(ii) SIN(a)+COS(a)=1

where (a) represents the angle, in degrees.

No more clues - that should get you through the maths. Don't ask me for a rigorous geometrical proof, I can't do it. Why do you think I married a maths graduate, anyway?

FURTHER READING

If you would like to know more about aero navigation, take a trip to your local library. I was pleasantly surprised to find mine full of books for budding pilots. Particularly good was "Ground Training for the Private Pilot Licence", by R D Campbell, which comes in three main manuals, plus some advanced ones. Number 2, "Air Navigation and Aviation Meteorology", will tell you all you ever wanted to know about Mercator Projections, including the transverse variety, and Lambert Conformal Conic Projections. Ahh, bliss! The set is published by Collins in the UK, and in the USA is distributed by Sheridan House Inc.

continued on page 26

DEAD RECKONING

```
EI 1 REM ********************************
QM 2 REM *FLIGHT NAVIGATION CALCULATOR *
SQ 3 REM *   FOR FLIGHT SIMULATOR II   *
RR 4 REM *            by               *
MA 5 REM *         ALAN PAGE           *
ED 6 REM * --------------------------- *
XT 7 REM *   NEW ATARI USER - DEC 90   *
EP 8 REM ********************************
EQ 10 TRAP 11000
IK 20 GRAPHICS 1:PRINT #6;"flight simulat
   or ii"
NV 30 POSITION 3,8:PRINT #6;"navigational
   "
CL 40 POSITION 3,16:PRINT #6;"calculation
   s"
XM 50 PRINT "         PRESS START TO BEGIN"
NM 60 GOSUB 4000
LI 70 DEG :DIM A$(1):PRINT #6;CHR$(125)
NO 80 SETCOLOR 0,2,14:SETCOLOR 1,0,10:SET
   COLOR 2,10,4
AQ 90 POSITION 0,0:PRINT #6;"enter wind s
   peed"
CZ 100 INPUT WINDSPEED
FR 110 POSITION 0,0:PRINT #6;"  WIND SPEE
   D  =";WINDSPEED;"  "
GG 120 POSITION 0,2:PRINT #6;"enter wind
   bearing"
KA 130 INPUT WINDBEARING
XJ 140 POSITION 0,2:PRINT #6;"  WINDBEARI
   NG =";WINDBEARING;"  "
XZ 150 POSITION 0,4:PRINT #6;"enter desti
   nation   bearing"
PL 160 INPUT COURSE
UF 170 POSITION 0,4:PRINT #6;"  BEARING O
   F          DESTINATION =";COURSE
CM 180 POSITION 0,7:PRINT #6;"enter dista
   nce to   destination"
GE 190 INPUT DISTANCE:IF DISTANCE>0 THEN
   200:EL=130:GOTO 11010
KL 200 POSITION 0,7:PRINT #6;"  DISTANCE
   TO          DESTINATION =";DISTANCE
FD 210 POSITION 0,10:PRINT #6;"enter crui
   sing       speed of aircraft"
DW 220 INPUT CRUISESPEED:IF CRUISESPEED<0
    THEN 210
QW 230 IF WINDSPEED<CRUISESPEED THEN 250
SD 240 PRINT #6;CHR$(125):POSITION 0,8:PR
   INT #6;"FORGET IT - YOU WILL BE FLYING
    BACKWARDS":GOTO 490
PG 250 POSITION 0,10:PRINT #6;"  CRUISE S
   PEED        OF AIRCRAFT =";CRUISESPEED
NQ 260 IF WINDBEARING=COURSE THEN GOTO 10
   00
EK 270 IF WINDBEARING+180=COURSE OR WINDB
   EARING-180=COURSE THEN GOTO 2000
TF 280 G=ABS(WINDBEARING-COURSE)
VH 290 H=ABS(SIN(G)*WINDSPEED/CRUISESPEED
   )
SX 300 J=H/SQR(1-H*H)
LF 310 ANGLE=ATN(J):ANGLE=INT(ANGLE*10)/1
   0
FY 320 IF WINDBEARING>=180 AND COURSE<180
    THEN GOSUB 540
ZM 330 IF WINDBEARING>=180 AND COURSE>=18
   0 OR WINDBEARING<180 AND COURSE<180 TH
   EN GOSUB 570
ZT 340 IF WINDBEARING<180 AND COURSE>=180
    THEN GOSUB 600
NY 350 IF HEADING<0 THEN HEADING=HEADING+
   360
EY 360 IF HEADING>360 THEN HEADING=HEADIN
   G-360
TP 370 GROUNDSPEED=ABS(WINDSPEED*SIN(WIND
   BEARING-HEADING)/SIN(ANGLE))
GE 380 TIME=DISTANCE/GROUNDSPEED:TIME=INT
   (TIME*10)/10
JF 390 GROUNDSPEED=INT(GROUNDSPEED*10)/10
TF 400 PRINT #6;"-----------------------"
QI 410 POSITION 7,13:PRINT #6;"HEADING=";
   HEADING
TY 420 POSITION 3,15:PRINT #6;"GROUNDSPEE
   D=";GROUNDSPEED
JS 430 POSITION 3,17:PRINT #6;"FLIGHT TIM
   E=";TIME
DN 440 POSITION 2,19:PRINT #6;"print out?
   (y,n)"
WJ 450 INPUT A$:IF A$="Y" THEN 480
RX 460 IF A$="N" THEN 490
PE 470 GOTO 450
RX 480 GOSUB 3000
WH 490 POSITION 2,19:PRINT #6;"run again?
   (y,n)"
ZL 500 INPUT A$
PS 510 IF A$="Y" THEN RUN
OY 520 IF A$="N" THEN GRAPHICS 0:END
NE 530 GOTO 500
WY 540 IF WINDBEARING-180>COURSE THEN HEA
   DING=COURSE-ANGLE:GOTO 560
PG 550 HEADING=COURSE+ANGLE
ZN 560 RETURN
ZG 570 IF WINDBEARING>COURSE THEN HEADING
   =COURSE+ANGLE:GOTO 590
GY 580 HEADING=COURSE-ANGLE
ZT 590 RETURN
NX 600 IF WINDBEARING+180>COURSE THEN HEA
   DING=COURSE-ANGLE:GOTO 620
EZ 610 HEADING=COURSE+ANGLE
ZG 620 RETURN
RG 1000 GROUNDSPEED=CRUISESPEED-WINDSPEED
DI 1010 HEADING=COURSE
RM 1020 GOTO 380
PB 2000 GROUNDSPEED=CRUISESPEED+WINDSPEED
DJ 2010 HEADING=COURSE
RC 2020 GOTO 280
YG 3000 LPRINT "FLIGHT SIMULATOR II NAVIG
   ATION"
XZ 3010 LPRINT
SA 3020 LPRINT "WIND SPEED = ";WINDSPEED;
   " knots"
XX 3030 LPRINT "WINDBEARING = ";WINDBEARI
   NG;" degrees"
OO 3040 LPRINT "DESTINATION = ";COURSE;"
   degrees"
IO 3050 LPRINT "   DISTANCE = ";DISTANCE;
   " nautical miles"
CA 3060 LPRINT "CRUISESPEED = ";CRUISESPE
   ED;" knots"
YR 3070 LPRINT
HJ 3080 LPRINT "--------------------------
   ------"
YK 3090 LPRINT
UQ 3100 LPRINT "FLY HEADING = ";HEADING;"
    degrees"
IF 3110 LPRINT "GROUNDSPEED = ";GROUNDSPE
   ED;" knots"
WL 3120 LPRINT "FLIGHT TIME = ";TIME;" ho
   urs"
AM 3130 RETURN
RP 4000 REM *** THOSE MAGNIFICENT MEN ***
OX 4010 FOR DATA=1 TO 100
YD 4020 IF PEEK(53279)=6 THEN RETURN
LQ 4030 READ DU,V0,P0,V1,P1,V2,P2,V3,P3
LC 4040 SOUND 0,P0,10,V0:SOUND 1,P1,10,V1
   :SOUND 2,P2,10,V2:SOUND 3,P3,10,V3
SQ 4050 FOR DEL=1 TO DU*10:NEXT DEL
PS 4060 FOR X=0 TO 3:SOUND X,0,0,0:NEXT X
UX 4070 FOR DEL=1 TO 10:NEXT DEL
GN 4080 NEXT DATA
BD 4090 RETURN
PL 4100 DATA 4,8,96,8,121,0,0,0,0
QN 4110 DATA 2,8,108,8,91,0,0,0,0
QY 4120 DATA 2,8,81,8,96,0,0,0,0
JH 4130 DATA 2,8,60,8,81,8,96,0,0
JK 4140 DATA 2,8,60,8,81,8,96,0,0
KJ 4150 DATA 4,8,60,8,81,8,96,0,0
MY 4160 DATA 4,8,64,8,81,8,96,0,0
JT 4170 DATA 2,8,60,8,81,8,96,0,0
IQ 4180 DATA 2,8,53,8,85,8,121,0,0
GV 4190 DATA 2,8,72,8,91,8,121,0,0
FW 4200 DATA 2,8,72,8,91,8,121,0,0
GV 4210 DATA 4,8,72,8,91,8,121,0,0
NI 4220 DATA 4,8,60,8,85,8,96,0,0
ND 4230 DATA 2,8,72,8,91,0,0,0,0
JZ 4240 DATA 2,8,64,8,81,8,85,0,0
PC 4250 DATA .8,8,64,8,81,8,91,0,0
PF 4260 DATA .8,8,64,8,81,8,91,0,0
PI 4270 DATA .8,8,64,8,81,8,91,0,0
HK 4280 DATA 2,8,64,8,81,8,91,0,0
IJ 4290 DATA 4,8,64,8,81,8,91,0,0
NS 4300 DATA 4,8,72,8,91,0,0,0,0
GR 4310 DATA 2,8,64,8,81,8,91,0,0
```

```
EI 4320 DATA 2,8,60,8,81,8,91,0,0
QI 4330 DATA .8,8,121,8,162,8,193,0,0
QL 4340 DATA .8,8,121,8,162,8,193,0,0
QO 4350 DATA .8,8,121,8,162,8,193,0,0
DF 4360 DATA 2,8,121,8,162,8,193,0,0
EE 4370 DATA 4,8,121,8,162,8,193,0,0
QN 4380 DATA 4,8,96,8,121,0,0,0,0
RA 4390 DATA 2,8,91,8,108,0,0,0,0
QY 4400 DATA 2,8,81,8,96,0,0,0,0
JH 4410 DATA 2,8,60,8,81,8,96,0,0
JK 4420 DATA 2,8,60,8,81,8,96,0,0
KJ 4430 DATA 4,8,60,8,81,8,96,0,0
MY 4440 DATA 4,8,64,8,81,8,96,0,0
JT 4450 DATA 2,8,60,8,81,8,96,0,0
IQ 4460 DATA 2,8,53,8,85,8,121,0,0
GV 4470 DATA 2,8,72,8,91,8,121,0,0
GY 4480 DATA 2,8,72,8,91,8,121,0,0
HX 4490 DATA 4,8,72,8,91,8,121,0,0
MW 4500 DATA 4,8,60,8,85,8,108,0,0
ND 4510 DATA 2,8,72,8,91,0,0,0,0
JZ 4520 DATA 2,8,64,8,81,8,85,0,0
PC 4530 DATA .8,8,64,8,81,8,91,0,0
PF 4540 DATA .8,8,64,8,81,8,91,0,0
PI 4550 DATA .8,8,64,8,81,8,91,0,0
HK 4560 DATA 2,8,64,8,81,8,91,0,0
IJ 4570 DATA 4,8,64,8,81,8,91,0,0
OU 4580 DATA 4,8,72,8,91,0,0,0,0
HT 4590 DATA 2,8,64,8,81,8,91,0,0
JI 4600 DATA 2,8,60,8,81,8,96,0,0
QI 4610 DATA .8,8,121,8,162,8,193,0,0
QL 4620 DATA .8,8,121,8,162,8,193,0,0
QO 4630 DATA .8,8,121,8,162,8,193,0,0
DF 4640 DATA 2,8,121,8,162,8,193,0,0
FA 4650 DATA 6,8,121,8,162,8,193,0,0
SK 4660 DATA 4,0,0,0,0,0,0,0,0
KZ 4670 DATA 4,8,60,8,81,8,96,0,0
SQ 4680 DATA 4,0,0,0,0,0,0,0,0
TM 4690 DATA 4,8,121,8,162,0,0,0,0
RU 4700 DATA 4,0,0,0,0,0,0,0,0
EF 4710 DATA 2,8,108,8,144,8,173,0,0
CI 4720 DATA 2,8,114,8,144,8,173,0,0
AM 4730 DATA 2,8,108,0,0,0,0,0,0
SS 4740 DATA 10,8,72,8,85,8,114,0,0
PF 4750 DATA 2,8,64,8,85,8,108,0,0
PI 4760 DATA 2,8,64,8,85,8,108,0,0
PL 4770 DATA 2,8,64,8,85,8,108,0,0
NY 4780 DATA 4,8,64,8,91,8,108,0,0
NK 4790 DATA 4,8,72,8,91,8,108,0,0
MG 4800 DATA 2,8,64,8,91,8,108,0,0
KM 4810 DATA 2,8,72,8,96,8,121,0,0
KO 4820 DATA 2,8,81,8,96,8,121,0,0
QW 4830 DATA 2,8,81,8,96,8,136,0,0
UK 4840 DATA 10,8,81,8,91,8,136,0,0
KX 4850 DATA 4,8,60,8,81,8,96,0,0
SO 4860 DATA 4,0,0,0,0,0,0,0,0
TK 4870 DATA 4,8,121,8,162,0,0,0,0
SU 4880 DATA 4,0,0,0,0,0,0,0,0
FF 4890 DATA 2,8,108,8,144,8,173,0,0
CG 4900 DATA 2,8,114,8,144,8,173,0,0
EJ 4910 DATA 2,8,108,8,144,8,173,0,0
MB 4920 DATA 4,8,72,8,85,8,114,0,0
NN 4930 DATA 4,8,60,8,85,8,108,0,0
GW 4940 DATA 2,8,72,8,91,8,121,0,0
PJ 4950 DATA 2,8,64,8,85,8,108,0,0
PM 4960 DATA 2,8,64,8,85,8,108,0,0
PP 4970 DATA 2,8,64,8,85,8,108,0,0
OC 4980 DATA 4,8,64,8,91,8,108,0,0
NO 4990 DATA 4,8,72,8,91,8,108,0,0
OD 5000 DATA 2,8,64,8,85,8,108,0,0
JA 5010 DATA 2,8,60,8,81,8,96,0,0
CO 5020 DATA 2,8,121,8,162,8,193,0,0
CR 5030 DATA 2,8,121,8,162,8,193,0,0
DQ 5040 DATA 4,8,121,8,162,8,193,0,0
KJ 5050 DATA 4,8,60,8,72,8,96,0,0
JP 5060 DATA 2,8,60,8,81,8,96,0,0
NM 5070 DATA 2,8,72,8,91,0,0,0,0
UC 5080 DATA 2,8,76,8,96,0,0,0,0
NS 5090 DATA 2,8,72,8,91,0,0,0,0
GD 5100 DATA 4,8,53,8,72,8,91,0,0
EZ 5110 DATA 4,8,60,8,72,8,91,0,0
MZ 5120 DATA 2,8,72,8,91,0,0,0,0
RC 5130 DATA 2,8,81,8,96,0,0,0,0
SB 5140 DATA 2,8,85,8,94,0,0,0,0
NI 5150 DATA 2,8,72,8,91,0,0,0,0
KN 5160 DATA 4,8,60,8,81,8,96,0,0
JU 5170 DATA 2,8,60,8,81,8,96,0,0
RL 5180 DATA 2,0,0,0,0,0,0,0,0
RU 5190 DATA 2,8,81,8,96,0,0,0,0
PY 5200 DATA 2,8,91,8,108,0,0,0,0
QO 5210 DATA 2,8,96,8,114,0,0,0,0
QE 5220 DATA 2,8,91,8,108,0,0,0,0
OA 5230 DATA 4,8,72,8,91,0,0,0,0
SD 5240 DATA 4,8,81,8,96,0,0,0,0
QN 5250 DATA 2,8,91,8,108,0,0,0,0
PK 5260 DATA 2,8,96,8,121,0,0,0,0
PN 5270 DATA 2,8,96,8,121,0,0,0,0
VA 5280 DATA 10,8,81,8,96,0,0,0,0
NW 5290 DATA 2,8,72,8,91,0,0,0,0
TK 5300 DATA 2,8,76,8,96,0,0,0,0
NA 5310 DATA 2,8,72,8,91,0,0,0,0
GN 5320 DATA 4,8,53,8,72,8,91,0,0
FJ 5330 DATA 4,8,60,8,72,8,91,0,0
NJ 5340 DATA 2,8,72,8,91,0,0,0,0
RM 5350 DATA 2,8,81,8,96,0,0,0,0
NN 5360 DATA 2,8,85,8,102,0,0,0,0
RS 5370 DATA 2,8,81,8,96,0,0,0,0
KK 5380 DATA 4,8,60,8,81,8,96,0,0
LA 5390 DATA 4,8,60,8,81,8,96,0,0
QT 5400 DATA 2,0,0,0,0,0,0,0,0
KE 5410 DATA 4,8,60,8,81,8,96,0,0
IF 5420 DATA 2,8,53,8,85,8,121,0,0
IW 5430 DATA 2,8,72,8,85,8,121,0,0
FT 5440 DATA 2,8,72,8,81,8,121,0,0
HM 5450 DATA 4,8,72,8,91,8,121,0,0
PZ 5460 DATA 4,8,64,8,85,8,108,0,0
KU 5470 DATA 2,8,60,8,91,8,96,0,0
KI 5480 DATA 2,8,53,8,64,8,85,0,0
OI 5490 DATA 2,8,81,8,91,8,128,0,0
MH 5500 DATA 2,8,81,8,91,8,136,0,0
NG 5510 DATA 4,8,81,8,91,8,136,0,0
ZB 5520 DATA 2,8,81,0,0,0,0,0,0
ZW 5530 DATA 2,8,64,0,0,0,0,0,0
YU 5540 DATA 2,8,53,0,0,0,0,0,0
DC 5550 DATA 6,8,40,8,53,8,64,8,81
DN 5560 DATA 2,8,42,8,53,8,60,8,85
FI 5570 DATA 6,8,42,8,53,8,60,8,85
TJ 5580 DATA 2,8,47,8,96,0,0,0,0
MW 5590 DATA 3,8,53,8,64,8,81,8,108
JE 5600 DATA 1,8,60,8,121,0,0,0,0
YF 5610 DATA 2,8,64,8,81,8,108,8,128
WO 5620 DATA 2,8,72,8,102,8,121,8,144
JE 5630 DATA 2,8,81,8,108,8,128,8,162
PC 5640 DATA 4,8,94,8,121,0,0,0,0
QV 5650 DATA 2,8,91,8,108,0,0,0,0
PH 5660 DATA 2,8,64,8,85,8,108,0,0
MY 5670 DATA 2,8,64,8,91,8,108,0,0
NB 5680 DATA 2,8,64,8,91,8,108,0,0
NE 5690 DATA 2,8,64,8,91,8,108,0,0
NB 5700 DATA 4,8,64,8,91,8,108,0,0
GY 5710 DATA 4,8,60,8,85,8,102,0,0
KO 5720 DATA 2,8,72,8,96,8,121,0,0
PA 5730 DATA 2,8,64,8,85,8,108,0,0
PP 5740 DATA 2,8,64,8,85,8,96,0,0
PS 5750 DATA 2,8,64,8,85,8,96,0,0
QR 5760 DATA 4,8,64,8,85,8,96,0,0
HQ 5770 DATA 4,8,60,8,85,8,102,0,0
LG 5780 DATA 2,8,72,8,96,8,121,0,0
PS 5790 DATA 2,8,64,8,85,8,108,0,0
PF 5800 DATA 2,8,64,8,85,8,96,0,0
PI 5810 DATA 2,8,64,8,85,8,96,0,0
PL 5820 DATA 2,8,64,8,85,8,96,0,0
QK 5830 DATA 4,8,64,8,85,8,96,0,0
KW 5840 DATA 2,8,72,8,96,8,121,0,0
MW 5850 DATA 2,8,64,8,91,8,108,0,0
MT 5860 DATA 8,8,60,8,81,8,96,0,0
GP 5870 DATA 4,9,60,9,72,9,102,0,0
NK 5880 DATA 4,9,60,9,72,9,96,0,0
BR 5890 DATA 12,10,60,10,72,93,0,0
ZX 5900 DATA 2,8,29,8,40,8,47,8,60
MA 11000 REM ***      TRAP ROUTINE     ***
SS 11010 EL=PEEK(186)+256*PEEK(187)
SA 11020 FOR Z=1 TO 5
FL 11030 PRINT CHR$(125):? "     INPUT ER
   ROR - TRY AGAIN"
VY 11040 FOR X=1 TO 10:NEXT X
HN 11050 PRINT CHR$(125):? "     INPUT ER
   ROR - TRY AGAIN";CHR$(253)
WG 11060 FOR X=1 TO 10:NEXT X
OJ 11070 NEXT Z
HA 11080 PRINT CHR$(125)
VL 11090 TRAP 11000
NP 11100 GOTO EL
```

COMING NEXT ISSUE ...

DISK DRIVES ... HOW DISKS ARE FORMATTED AND PROTECTED

ADVENTURE MAZES ... HOW THEY HAVE EVOLVED

CURTAINS ... A SUPERB ROUTINE TO START YOUR PROGRAMS

DEAD-RECKONING continued

GET FLYING

Now boot up FSII and log in the New York and Boston area scenery. Try the following:

Martha's Vinyard to Gen. Edward Lawrence Logan International
Bearing 357 degrees, 62 nautical miles
wind: 30 knots, from 267 degrees.
airspeed: 125 knots

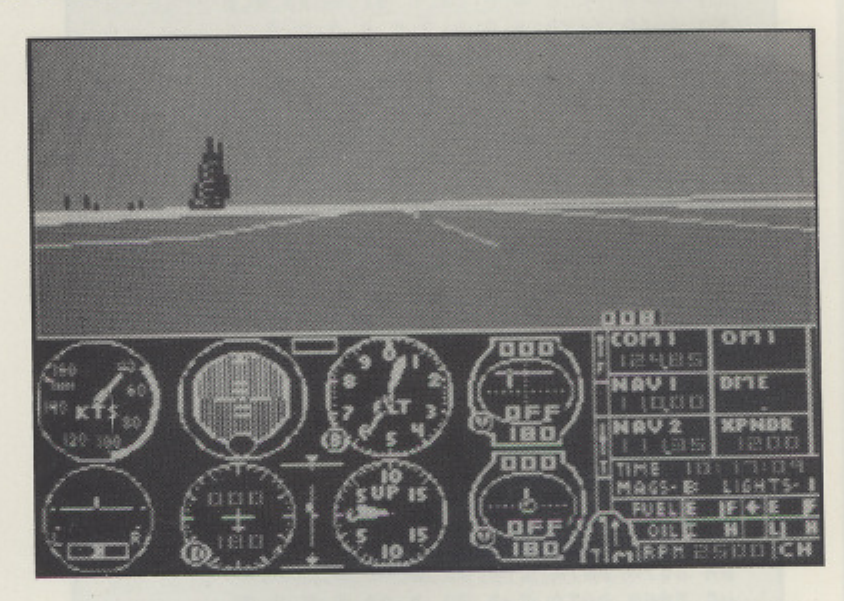
Try to fly direct on a compass heading of 357, you should find that you are blown off course, to the East.

Now, using the navigation program, if you fly a heading of 343, you should arrive at your destination without further mishap.

Now work out your own examples. Try some ridiculously high winds to prove that it really works.

FURTHER REALISM

I find that a good road map of the USA fills in much of the detail that cannot be included in the scenery disk data. I like to imagine the whole panorama spread out below, just like an aerial photograph, glimpsed occasionally between the billowing white clouds, floating in the air like lumps of cotton wool.



The map is also useful to determine the minimum safe altitude at which to fly. You should not fly below 1000 feet above the highest ground on your route. That is, if you want to avoid frightening livestock and old ladies, and getting wrapped round high voltage cables.

By now some of you must be asking yourselves, will FSII ever lie down? No - NEVER!

ACE DRIBBLER

by

Bill Halsall

Take a couple of croquet balls, a handful of playing cards and mix well with some of the 'delights' of motoring and you have a zany game to test your skill and patience.

All you have to do is knock down the aces with the yellow ball which is manoeuvred by hitting it with your joystick controlled blue ball. To complete each of the 12 screens simply knock over the Ace of Hearts. Unfortunately, you won't be able to do this until you have disposed of all the Clubs which have a nasty habit of turning into impatient little roadhogs! Meanwhile, back on the tarmac, the Spades are digging potholes which have voracious appetites for yellow croquet balls! Diamonds are for bonuses but aren't forever so you'll have to move fast. The trouble is that you can't speed up until you hit the 'no limit' sign so be patient. If your ball gets stuck in a traffic jam you can always press START to get out of it, but by doing so you'll lose your ball! You'll just have to be a careful dribbler won't you!

You have three croquet balls to last the game and up to 4 players may compete in turns using a joystick plugged in Port 1. Press SELECT to obtain the required number of players then press the joystick button to commence play.

SCORING

Ace of Hearts - 1000
Ace of Diamonds - 500
Ace of Clubs - 100
Ace of Spades - 10

TYPING IT IN

Cassette and disk users should type in Listing 1, SAVE or CSAVE a copy, then RUN the program. The program will check each line of data and inform you of any errors. Correct any errors and RUN the program again until all errors are eliminated. When this is done answer the cassette/disk questions accordingly to create a boot tape or binary disk file.

Cassette users should load the boot tape created by firstly removing all cartridges and then turning on the computer while holding down the START key (XL and XE owners should hold down OPTION as well). Press RETURN and the tape will load and run automatically.

Disk users should type in Listing 2 and save it on the same disk as the binary file created by Listing 1. RUN the Listing 2 program with the disk in the drive and the game will load and run automatically.

AND THE ROADHOGS



ACE DRIBBLER and THE ROADHOGS

```
EI 1 REM ********************************
TG 2 REM *         ACE DRIBBLER         *
CQ 3 REM *      AND THE ROAD HOGS       *
RR 4 REM *              by              *
UM 5 REM *         Bill Halsall         *
ED 6 REM * ---------------------------- *
XT 7 REM *   NEW ATARI USER - DEC 90    *
EP 8 REM ********************************
AY 10 REM
BC 12 REM
NA 14 REM  BOOT TAPE/OBJECT CODE FILE 
           MAKER - BASED ON HEXSAVER 
                BY NICK HIGGS 
BK 16 REM
PD 20 DIM LINE$(96),A$(8192):LINE=990:CNT
   =-48:TRAP 100:GOSUB 200
LM 30 A$(1)="0":A$(8192)="0":A$(2)=A$
RG 40 LINE=LINE+10:CNT=CNT+48:READ LINE$,
   CHKSUM:? "CHECKING LINE ";LINE
IH 50 CHK=USR(1536,ADR(LINE$),ADR(A$)+CNT
   )
QI 60 GOSUB 300:GOTO 40
VH 100 IF PEEK(195)<>6 THEN ? "ERROR ";PE
   EK(195);CHR$(253):END
AL 110 ? "WORKED OKAY":TRAP 100
RX 120 ? "(D)ISK OR (T)APE":GOSUB 180:IF
   K=68 THEN 140
AK 130 ? "READY CASSETTE AND PRESS RETURN
   ":OPEN #1,8,128,"C:":GOTO 160
KV 140 ? "READY DISK AND PRESS RETURN":GO
   SUB 180:IF K<>155 THEN 140
TH 150 OPEN #1,8,0,"D:ACE.OBJ"
WX 160 ? #1;A$(1,3840):CLOSE #1:END
ZH 180 CLOSE #1:OPEN #1,4,0,"K:":GET #1,K
   :CLOSE #1:RETURN
MQ 200 FOR A=1536 TO 1658:READ D:POKE A,D
   :NEXT A:RETURN
IX 210 DATA 216,104,104,133,204,104,133,2
   03,104,133,206,104,133,205,169,0,141,1
   27,6,141
IZ 220 DATA 128,6,160,255,140,125,6,140,1
   26,6,173,126,6,201,47,208,11,173,127,6
QG 230 DATA 133,212,173,128,6,133,213,96,
   172,125,6,200,140,125,6,177,203,32,111
   ,6
IS 240 DATA 10,10,10,10,141,123,6,172,125
   ,6,200,140,125,6,177,203,32,111,6,24
ZH 250 DATA 109,123,6,172,126,6,200,140,1
   26,6,145,205,24,109,127,6,141,127,6,17
   3
MY 260 DATA 128,6,105,0,141,128,6,76,30,6
   ,96,201,58,144,4,56,233,55,96,56,233,4
   8,96
YL 300 DLNE=PEEK(184)*256+PEEK(183)
RV 310 IF LINE<>DLNE THEN ? "LINE ";STR$(
   LINE);" MISSING!":END
QZ 320 IF CHKSUM<>CHK THEN ? "ERROR IN DA
   TA AT LINE ";STR$(LINE):END
ZF 330 RETURN
MQ 1000 DATA 001E00202720A9008D2F02A93C8D
   02D3A9008DE702850EA9308DE802850FA92885
   0AA92085 0B18604C3E2E48A97A8D0A,4028
UQ 1010 DATA D48D1AD08D6620A90C8D17D0A938
   8D09D4A9488D0002684048A9208D18D0A9558D
   0002684048AD662049 7C8D0AD48D1A,4879
OL 1020 DATA D08D662068407A70604200318200
   C40032048404040404040404040404040404
   040404040404040404416720A928 8D,2381
HS 1030 DATA 0002A9208D010220AC2D4C62E4A9
   008D2F0285B4205E2120062120FE22204426A9
   388D07D4A9E08DF402A9038D1DD0A9,4442
FN 1040 DATA 028D6F02A9008D08D2A9038D0FD2
   8D0AD08D0BD0A9678D3002A9208D3102A208BD
   FD209DC002CA10F7A93B8D2F02A08D,5076
DY 1050 DATA A220A907205CE4A9C08D0ED460CC
   727A7A000C32B400A221A2218D1A219D08318D
   3C219D3831CA10F160000000212325,4406
EE 1060 DATA 002432292222 2C2532000600342 8
   2500322F2124282F27330000000002279002269
   6C6C0028616C73616C6C00666F7200,2314
YK 1070 DATA 2E6577002174617269003573 6572
   A900A885CBA23186CC91CBC8D0FBE8E040D0F4
   99B000C8C05AD0F8600000003030F0F,5714
NR 1080 DATA 0A0A0000C0C0F0F0A0A00A0A0A0F
   3FFFFF3FA0A0A0F0FCFFFFFC15AABAAAAAAEBF
   BFBFBFAFABAAAAAAAAA55A9A9A9A9E9,7294
HY 1090 DATA F9F9F9F9E9A9A9A9B9A815AABAAA
   AAABAFBFBFBFAFABAAAAAAAAA55A9A9A9A9E9
   F9F9F9E9A9A9A9B9A815AA9AAAA9A5,8603
WA 1100 DATA 9595959 5A9A5AAAAAAAA55A9A9A9
   A969595959 59A969A9A999A815AA9AAAA5A5A5
   959796 96A9A5AAAAAA55A9A9A96969,7021
HW 1110 DATA 695959595 9A969A999A8FF3FF7FF
   CFFFFCFFFFF7FF3FF3FFFDFFFCFFF7CFFF3FFF
   DFFFFCDFF73FFFCFFF551546842698,8852
HT 1120 DATA 6AAA5104200280200 2AA55144104
   880220AA55150010022088AA50F4FFEFE73FFA
   EAE6E6FA3F0C0CFCF0147CFCEC6CF0,5568
PP 1130 DATA BCAC6C6CBCF0C0FC3C0000051555
   55551505000040545555545003 0E3A393A393A
   39FFAAAA6566666665C0B0AC6C6C6C,4626
RV 1140 DATA 6C6C3A0E0300000000000AAAAFF14
   28142814ACB0C00000000000000020A2A2A2A2A29
   25AAAAA9A595565A6A80505868A8A8,3665
GV 1150 DATA A8A81506020000000000AAAAAA14
   28142814A8A000000000000000000000183C3C
   7E7E7E7E7E3C3C180000000000A200,2551
UC 1160 DATA BD7A219D2038BD7A229D2039E8D0
   F1A2F6A9FF9D003E9D003FCAE026D0F5A9108D
   02D0A9D08D03D0A2008E5B23EE5B23,6100
NJ 1170 DATA AD5B23C905D007A9008D5B23F007
   AD0AD22903F0F918691C9D00329D00339D0034
   9D00359D0036CAD0D36000AD50240A,4547
AW 1180 DATA AABDEC2585CBBDED2585CC60A5CB
   18693085CB9002E6CC60A9008DA2234C8523A9
   018DA223205C23A205A000ADA223F0,5776
VR 1190 DATA 03200C2691CBC8C00AD0F1206C23
   CAD0E96000207823 4C5C23A90491CBC8A90591
   CB88206C23A90691CBC8A90791CB60,5485
GL 1200 DATA A5B40AAABD442585CDBD452585CE
   A9008D5024AD5024C910F050184AA8B009B1CD
   4A4A4A4A4CEC23B1CD290FC900F061,5495
ZM 1210 DATA C901F060C902F05FC903F061C904
   F063C905F062C906F061C907F060C908F05FC9
   09F05EC90AF05DC90BF05CC90CF05B,6513
SB 1220 DATA C90DF062EE50244CD323A008B1CD
   85B60DD328C8B1CD85B70DD428C8B1CD85B0C8
   B1CD85B1A90085B52015262066266 0,6409
BM 1230 DATA 004C0F244C9524209B244C242420
   AE244C24244CC7244CD2244CDD244CE8244CFB
   244C06254C11254C192520AE24A92C,3792
HT 1240 DATA 8D39254C2125209B24205C234C09
   252078234C2424200023 4C24242078232 05C23
   A0C0200C2691CBC8C0CAD0F6602078,3987
WU 1250 DATA 23205C23A205200C26A00891CBC8
   91C8206C23CAD0F06020A323A09820A9234C24
   2420A323A03820A9234C242420A323,4414
KG 1260 DATA A06620A9234C242420A323A00820
   A923205C23A09220A9234C242420A323A03220
   A9234C242420A323A00220A9234C24,3693
HH 1270 DATA 24A9268D39254C1E25A92C8D3925
   20782320 5C23A064203A25C067D0F9A094203A
   25C097D0F94C242426AD392591CBC8,4790
YL 1280 DATA EE3925605C2568257425802 58C25
   9825A425B025BC25C825D425E0251106116004
   0854801B0534CE6080715286900181,4245
IT 1290 DATA 270434CE7229B737305 45A011704
   80CE6749A122450B11192905ACCE877A3C2256
   A98110180AC4CE17B8A41117B81A10,4067
NF 1300 DATA 2A06C4CE87DB1651B378011A2A05
   ACCE4B6971B115C1078A0A0A34CE0148471BB5
   1A18B718043C4E22B86A16781775BB,4309
DC 1310 DATA 08083C4E767A8117BC76BC11190E
   54CEDC797C17B15B78B11805344E94329E32A8
   32B23284338E339833A23374347E34,4588
NR 1320 DATA 8834923464356E3578358235AD0A
```

ACE DRIBBLER and THE ROADHOGS

```
   D2290318699860203526206126E6B5E6B5C820
   6126206C23C6B588206126E6B5E6B5,5030
RO 1330 DATA C820612660A6B7BDC03185CBBDE0
   3185CCA4B660A200A90085CBA93285CCA5CB9D
   C031A5CC9DE031206C23E8E018D0EE,6708
OU 1340 DATA 60A5B591CB60A900AA9D003D9D00
   3C9D003BE8D0F420FE2C60A5BBF019300DA5B0
   C9CCF007E6B0C6BB4C9626A5B0C92C,6298
HZ 1350 DATA F0EDC6B0E6BBA5BCF019300DA5B1
   C9D4F007E6B1C6BC4CB326A5B1C938F0EDC6B1
   E6BCA5BC05BBD00320C02620FE2C60,7348
FD 1360 DATA A5B985BBA5BA85BC60AD00D00D01
   D00D03D0290E0D02D0D00EAD00D02901F014AD
   03D02901F00D20F52620C026A90885,5014
IA 1370 DATA F8202A2860A5B038E91F4A4A85B6
   AD00D0F002E6B6A5B138E9234A4A85B72035
   26A200206527C8206527206C238820,4993
YX 1380 DATA 6527C8206527AD00D0F009A5B930
   05205F2785B9AD03D0F009A5B91005205F2785
   B9AD01D0F009A5BA1005205F2785BA,5005
IM 1390 DATA AD02D0F009A5BA3005205F2785BA
   6049FF18690160B1CB9D7031E860AD78022901
   D003209527AD78022902D00320A227,4747
VD 1400 DATA AD78022904D00320BC27AD780229
   08D00320AF2760A4B3C024F006C884B320C927
   60A4B3C0E8F006C884B320C92760A4,5395
QN 1410 DATA B2C0D8F006C884B220C92760A6B2
   E020F006CA86B220C92760A5B28D01D0A200A4
   B3BDEA2299003DC0E8E014D0F460AD,6704
AS 1420 DATA 0DD02901F043A90885F9A5B038E5
   B285B9A5B138E5B385BA20C026A5B9F00F3007
   A5B2E9084C0C28A5B2690885B2A5BA,6128
YM 1430 DATA F0113008A5B338E9044C2128A5B3
   18690485B38D1ED04CC92760A203BD70314A4A
   C902F012C903F039C904F052C905F0,5277
UP 1440 DATA 65CA10E84C1828A5D3D026A96485
   F420812BADD32885B6ADD42885B720BD28A900
   85D085EAA5B4C908F006E6B4A6F5F6,6654
XJ 1450 DATA BF60A93285F420812BA5D585B6A5
   DF85B720BD28A90085D1A513E90285EC60A901
   85F420812BA5D685B6A5E085B720BD,6511
IR 1460 DATA 28A90085D260A90A85F420812BA5
   D785B6A5E185B720BD28A90085D360203526A9
   0091CBC891CB88206C23A90091CBC8,5895
RY 1470 DATA 91CB600000AD0AD2291F18690685
   B6AD0AD2290F18690585B7203526B1CBD0E5C8
   B1CBD0E088206C23B1CBD0D8C8B1CB,5905
CL 1480 DATA D0D360A6E9B5D1D01B20D528A6E9
   A5B695D5A5B795DFBD252985B5201526A901A6
   E995D1600C101420A5EAC906F022E6,6537
MK 1490 DATA EA20AD28E6F2A5EA85EBA5D785B6
   85D8A5E185B785E220F729C6EFC6EFA90085D3
   60A5EAF0FB85EBA6EBF0F5A5BDC902,8331
IM 1500 DATA F006A5142901D0E9B5D885B6B5E2
   85B7203526AD0AD22903F03BC901F058C902F0
   1988B1CBD06B206C23B1CBD06420BD,6121
FK 1510 DATA 28A4B68884D884B64CEF29C8C8B1
   CBD051206C23B1CBD04A20BD28A4B6C884D884
   B64CEF29A5CB38E93085CBB002C6CC,6892
JV 1520 DATA B1CBD02EC8B1CBD02920BD28A6B7
   CA86E286B74CEF29206C23206C23B1CBD012C8
   B1CBD00D20BD28A6B7E886E286B720,6616
DB 1530 DATA F729C6EB4C5829A90085D4A90385
   E9200C29A6EBA5D895D8A5E295E260A5D2D022
   AD0AD2D040A21FBDDA219D8038CA10,6546
ZP 1540 DATA F7A51318690285EDA90185E9A900
   85F14C0329A513C5EDD008A5F1D004A96485F1
   A5F1F011C6F1A5F1F00CAD0AD2291F,6451
CO 1550 DATA AAA9009D803860209628880A92491
   CBA925C891CB60A5D3F009A513C5EFD0062029
   2920F62A60A5D1F02BA513C5ECD024,6044
VV 1560 DATA AD7F38F018A20FBD5F389D6038BD
   6F389D7038CAD0F18E60388E703860A90085E9
   20792860A5ECC513D0F9E6ECE6ECA9,6477
JW 1570 DATA 0085E94C0329A90085D285D385D1
   85F185F385EA85BAA90185B920C02620C927A9
   0185D0A90285BDA6B4BDEA2A85F2A5,6497
GQ 1580 DATA B4180A6905651385EC6002030405
   05060606070707A5D3D01AA5F2F017A90085
   D3A90285E9200329C6F2A513186903,4136
LH 1590 DATA 65EA85EF604C5A2DA203BD7031C9
   24F028C925F024C926F04EC928F04AC929F046
   C92BF042C92CF043C92EF03FC92FF0,6364
HK 1600 DATA 3BC931F037CA10D260AD00D00D01
   D00D02D00D03D0290ED0EFA90185F3A5B1AAA0
   00A9009D003C9D003B20442DE8C8C0,5269
WE 1610 DATA 14D0EF20332E60A90285BD60A901
   85BD60A5F4F026A91F85FAA6F5BDAC2BAAA005
   88CAFE3431BD3431C91AD009A9109D,6058
LQ 1620 DATA 3431C000D0EBC6F44C812B60050D
   151DA205A9109D34319D3C319D44319D4C31CA
   10F160AD8402D0FBAD8402F0FB6020,5269
VH 1630 DATA 452C20D92B20DF2C60A208BDFE2B
   9D0731BD072C9D2231CA10F1A212BD2D2C9D0E
   31CA10F7A5F618691180053160302C,4691
ZZ 1640 DATA 213925320000000027212D25002F36
   253233233225252E00000000000000000001111
   1112131415161718191011128082A5,1568
IO 1650 DATA B3B380A2B5B4B4AFAE8FB3A5ACA5
   A3B4A25F4C472CA22FA9009D0031CA10FA60A9
   0385F5A6F53033BDAC2B38E905AA85,6362
ZH 1660 DATA BEA00038BD3431F95631F0049018
   B006E8C8C006D0EDA000A6BEBD3431995631E8
   C8C006D0F4C6F54C542C60A208BD98,6179
HU 1670 DATA 2C9D5331CA10F760202910101010
   10101020452CA208BDFE2B9D0631BD102C9D13
   31A9009D2031CA10ECA5F518691180,4145
GJ 1680 DATA 0D31A6B4BD162C8D1A31BD212C8D
   1B31A954A201E4F7F0069D2531E8D0F660AD1F
   D0C905D012E6F6A5F6290385F620D9,5927
RU 1690 DATA 2BAD1FD0C905F0F9AD8402D0E260
   A6B0A9148D0CD08E00D0E88E07D0E88E05D08E
   06D0E8E8E88E04D0A200A4B1BDEA22,6771
VK 1700 DATA 99003CBD302D99003BC8E8E014D0
   EE60000000000000C0CC3C3C3C3303000000
   000000A9028D1C02AD1C02D0FB8A0A,4172
FN 1710 DATA 0A8D00D2A9A88D01D260A5D0C902
   F00EA9008514A51318690685F0E6D060A5F0C5
   13D0F9AD5F38F018A20FBD3F389D40,5896
BX 1720 DATA 38BD4F389D5038CAD0F18E40388E
   5038604C592BA21FBD9A219D4038CA10F760A2
   1FBDBA219D6038CA10F760A6F8F012,5718
CA 1730 DATA A9A88D01D2BD2A2E8D00D2D0038D
   01D2C6F8A6F9F012A9A88D03D2BD212E8D02D2
   D0038D03D2C6F9A5FAF017A9AA8D05,6486
VR 1740 DATA D2A91F38E5FA0A8D04D2C6FAA5FA
   D0038D05D2A5EAF026A5F34901F020AD0AD229
   01F00BA94E8D06D2A9228D07D260AD,6291
CU 1750 DATA 0AD22907D00AA9078D06D2A9CA8D
   07D26000001EC01EC01EC01E0000645A50463C
   2814A207A9009D00D2CA10FA60209D,4482
YV 1760 DATA 20AD0AD2290785B420C023A9FF8D
   1C0220492D20402C208C2C20332E20CF2B20B0
   2BA90085BF85C085C185C285B4A903,4764
AI 1770 DATA 85F7A90085F5A6F5B5BF85B420C0
   23A90085B285B320C92720A12C20942D20A02D
   20C42B20B62AA5BD8D1C0220C926A5,5661
OM 1780 DATA D0F0D3A5F3D035AD1FD0C906D006
   20592B4CDC2E207926206C27200F27206C2720
   DF27200D2A8D1ED02052292065 2A20,4632
VR 1790 DATA 762AAD1C02D0FB854D4C972EA5F5
   C5F6F005E6F54C762EC6F7A5F7D08520502C4C
   592E000000000000000000000000000,4683
```

```
TC 10 REM  LOAD AND RUN ROUTINE
           FOR ACE DRIBBLER
           AND THE ROAD HOGS
BA 11 REM
LQ 20 OPEN #1,4,0,"D:ACE.OBJ"
OC 30 POKE 850,7:POKE 852,0:POKE 853,32:P
   OKE 856,255:POKE 857,255
SN 40 X=USR(ADR("hhh█LV█"),16)
BQ 50 CLOSE #1:X=USR(8232)
```

LISTING 2

1020 PLOTTER ROUTINES

Ray Allen provides a couple of utilities for the unique little 1020 printer/plotter

The 1020 printer/plotter still remains popular with reconditioned units now being readily available from one of our current advertisers. It is a handy little printer for program listings and many owners will have tinkered around trying to program it but few realise that it can do full screen dumps just like any other printer.

The program presented here will dump any Graphics 8 screen that has bee saved a standard 62 sector file. It is not particularly fast but it certainly works! Using standard Atari basic a full screen dump will take an incredible 50 minutes but this can be shortened to around 30 minutes by using Turbo Basic and to 23 minutes by compiling the program with the Turbo Basic Compiler.

The second short listing won't take nearly as long! It is a simple directory printing routine that you could add to any of your programs and it produces a neat four column printout of any disk in drive 1.

THE 1020 SCREEN DUMP

The main use is to print out a GRAPHICS Mode 8 screen. The program will print screens from R-DRAW (from the PAGE 6 Library) and it can print Atari Artist screens but they don't look that good in one colour.

The dump features bi-directional printing but is still fairly slow. One tip is to tear off the paper before each print as the printer will advance the paper to see if you have got enough and add equal amounts of paper at each end of the finished print. If you print a lot of screens the dumps should then be on the same size of paper.

```
GX 1 REM ┌─────────────────────────────┐
RI 2 REM | DIRECTORY PRINTER FOR 1020|
LU 3 REM |        by Ray Allen       |
GR 4 REM └─────────────────────────────┘
SK 10 OPEN #1,8,0,"P:":? #1;"⌐+"
KK 20 DIM F$(20):OPEN #2,6,0,"D:*.*"
SV 30 TRAP 50:INPUT #2,F$
NQ 40 ? #1;F$;"   ";:GOTO 30
CP 50 CLOSE #1:CLOSE #2
```

HOW TO RUN

The program will first ask for the name of the PIC file you wish to dump. When entering the filename you don't have to put "D:" as it will be done for you if left off. If the PIC to print is called PICTURE then press RETURN only as this is the default filename.

You will next be asked for the colour to print the picture in. It only prints in one colour as Graphics 8 is only one colour but you can choose which of the four pens to use. The picture will then load in with the screen white to represent the paper and the image in black. This will show you what the finished print should look like. When the printout is finished (go and make a cup of tea!) it will ask if you want to run again.

The print sub-routine can be used in any program that draws Graphics 8 screens such as SPIRO in an earlier issue of the magazine. Just add the routine after the screen has been drawn.

1020 DIRECTORY PRINT

This simple little routine will print the directory of a DOS 2.5 disk and should work with other DOS's but I have not tried any.

The directory will be printed in four columns across the paper and this can be put in the jacket of the disk so you will know what is on each disk. The routine could be added quite simply to any program

I hope that you continue to enjoy using the 1020, mine still gets constant use!

```
ED 10 REM ************************************
OG 15 REM #   PLOTTER DRIVER  II+    #
SN 20 REM # 1020 HI-RES GR.8 DUMPER #
BB 25 REM #  62-SECTOR FILE'S ONLY  #
RV 30 REM # ----------------------- #
GG 35 REM #      BY  RAY ALLEN      #
OA 40 REM # NEW ATARI USER - DEC 90 #
EQ 45 REM ************************************
BC 50 REM
GA 55 REM  MAIN SET-UP 
BD 60 REM
KK 65 GOSUB 525:REM * MAIN SCREEN
AN 70 GOSUB 455:REM * INPUT FILE NAME
BB 75 GOSUB 375:REM * INPUT PEN COLOUR
IR 80 GOSUB 325:REM * LOAD PICTURE
AF 85 GOSUB 155:REM * PRINT PICTURE
VS 90 GOSUB 110:REM * RUN AGAIN
BQ 95 REM
MD 100 REM  RUN AGAIN 
RB 105 REM
NA 110 GRAPHICS 0:POKE 764,255:POKE 752,1
NX 115 POSITION 12,5:? "Run again (Y/N) ";
BE 120 K=PEEK(764)
EN 125 IF K=43 THEN RUN
WL 130 IF K=35 THEN GRAPHICS 0:POKE 764,255:END
MX 135 GOTO 120
QU 140 REM
YS 145 REM  PRINT PICTURE 
QW 150 REM
PY 155 TRAP 590
VJ 160 OPEN #2,8,0,"P:"
IS 165 POKE 65,0
VX 170 ? #2;CHR$(27);CHR$(7)
ZJ 175 ? #2;"C";COLOUR
ME 180 ? #2;"M48,-400"
LQ 185 ? #2;"I"
YI 190 ? #2;"M0,319"
YQ 195 COLOR 1
DP 200 A=0
DD 205 FOR B=1 TO 192
NX 210 LOCATE 319-A,B-1,P:IF P=1 THEN GOSUB 275
CT 215 PLOT 319-A,B-1:COLOR 1
DE 220 NEXT B
NC 225 A=A+1
WP 230 ? #2;"M";384;",";319-A*2
UB 235 FOR B=192 TO 1 STEP -1
OD 240 LOCATE 319-A,B-1,P:IF P=1 THEN GOSUB 275
CZ 245 PLOT 319-A,B-1:COLOR 1
DK 250 NEXT B
NI 255 A=A+1
PP 260 ? #2;"M";0;",";319-A*2
RF 265 TRAP 295
ON 270 GOTO 205
AX 275 ? #2;"M";B*2-1;",";319-A*2
RY 280 ? #2;"D";B*2;",";319-A*2
YE 285 COLOR 0
ZQ 290 RETURN
UP 295 ? #2;"I":? #2;"M0,-230"
LL 300 CLOSE #2
ZO 305 RETURN
QQ 310 REM
NJ 315 REM  LOAD PICTURE 
QS 320 REM
ZA 325 GRAPHICS 24:SETCOLOR 1,0,0:SETCOLOR 2,0,15:SETCOLOR 4,0,15
PH 330 TRAP 590
DF 335 OPEN #1,4,0,FILE$
IZ 340 POKE 850,7:POKE 852,PEEK(88):POKE 853,PEEK(89):POKE 856,255:POKE 857,255
YQ 345 T10=USR(ADR("hhh?LV?"),16):CLOSE #1
WT 350 POKE 764,255
ZY 355 RETURN
RA 360 REM
MB 365 REM  INPUT PEN COLOUR 
RC 370 REM
BP 375 POSITION 11,11:? "Enter colour of PEN"
XK 380 POSITION 17,13:? "1=BLACK"
PN 385 POSITION 17,14:? "2=BLUE"
VC 390 POSITION 17,15:? "3=GREEN"
LW 395 POSITION 17,16:? "4=RED"
XG 400 POSITION 13,19:? "> ?";
JB 405 POKE 764,255:POKE 752,1
IY 410 KEY=PEEK(764)
TG 415 IF KEY=31 THEN COLOUR=0:RETURN
TH 420 IF KEY=30 THEN COLOUR=1:RETURN
XL 425 IF KEY=26 THEN COLOUR=2:RETURN
WZ 430 IF KEY=24 THEN COLOUR=3:RETURN
NT 435 GOTO 410
QX 440 REM
GK 445 REM  INPUT FILE NAME 
QZ 450 REM
XN 455 INPUT INPUT$
OI 460 POSITION 15,8:? "                   "
OW 465 POSITION 13,8:? "> ";
YH 470 IF INPUT$="" THEN 495
TG 475 IF LEN(INPUT$)>=15 THEN 455
RB 480 IF INPUT$="C" OR INPUT$="C:" THEN FILE$="C:":GOTO 500
HB 485 IF INPUT$(1,2)<>"D:" THEN FILE$="D:":FILE$(3)=INPUT$:GOTO 500
KB 490 FILE$=INPUT$
IU 495 FILE$="D:PICTURE"
HA 500 POSITION 16,8:? FILE$;"   "
ZQ 505 RETURN
QS 510 REM
XL 515 REM  SET-UP SCREEN 
QU 520 REM
PH 525 GRAPHICS 0:POKE 764,255
UV 530 SETCOLOR 1,9,4:SETCOLOR 4,9,4
AM 535 DIM A$(1):DIM INPUT$(15):DIM FILE$(15)
JO 540 POSITION 11,2:? "1020 HI-RES PLOTTER"
UE 545 POSITION 10,3:? "---------------------"
ZN 550 POSITION 9,5:? "Enter PICTURE file name"
DM 555 POSITION 15,23:? "By  R.Allen"
OI 560 POSITION 13,8:? "> ";
EV 565 SETCOLOR 1,9,10
ZP 570 RETURN
RT 575 REM
AK 580 REM  ERROR TRAP ROUTINE 
RV 585 REM
PG 590 GRAPHICS 0:POKE 764,255
AO 595 E=PEEK(195)
KA 600 IF E=139 THEN 635
JJ 605 IF E=138 THEN 625
IK 610 IF E=170 THEN 645
HO 615 POSITION 11,6:? "ERROR NUMBER:- ";:? E
PQ 620 GOTO 650
ZN 625 POSITION 4,6:? "ERROR NUMBER ";:? E;:? " NO POWER TO UNIT"
PS 630 GOTO 650
YP 635 POSITION 4,6:? "ERROR NUMBER ";:? E;:? " NO DISK IN DRIVE"
PU 640 GOTO 650
VI 645 POSITION 4,6:? "ERROR NUMBER ";:? E;:? " FILE NOT FOUND"
QX 650 POSITION 8,11:? " HIT A KEY TO TRY AGAIN ";
YW 655 K=PEEK(764):IF K<255 THEN RUN
SG 660 GOTO 655
```

SOUND RECORDING Part 2

John S Davison concludes his exploration of direct recording from your Atari

As discussed in the last issue, an ordinary domestic stereo cassette recorder can make perfectly acceptable recordings of the music you produce with your Atari computer. But if you get really serious about creative recording you soon discover that a stereo machine has many limitations. For instance, once a piece of music has been recorded there's not much more you can do to it - except play it back. If you've looked into the subject at all you find yourself drooling over the creative possibilities available to professionals, with their multi-channel sound mixing desks, multi-track tape recorders, and electronic effects generators. Then you realise the astronomical cost involved puts it all permanently beyond your reach.

Don't despair though, as once again technology has come to the rescue! It's now possible to set up a "home studio" offering many of the facilities of a professional studio at a surprisingly low price. Obviously, everything is on a smaller scale and you won't get full professional quality, but the results can be amazingly good.

The big breakthrough was the invention by Tascam of the cassette based multi-track recorder, complete with its own built-in multi-channel sound mixer. Owning one is like having your own portable recording studio, hence that awful term "portastudio" now used to describe machines of this type. Other manufacturers soon jumped on the bandwagon and now companies such as Vestax, Fostex, Sansui, and Yamaha also have models available.

Competition has caused prices to tumble and you can now buy a portastudio for under £200, but for this amount you'll only get a very simple model. You probably really need to spend at least £300 to get something you won't quickly outgrow. Sounds expensive? Perhaps, but it's a tiny fraction of the cost of "professional" equipment, and will give you a creative freedom just not possible with a normal stereo machine.

MULTI-TRACK

The typical stereo cassette recorder always records and plays back two audio tracks at a time, i.e. the left and right stereo channels. Most portastudios have four tracks, but more expensive models may have six, or even eight, and can usually record concurrently on any combination of them. More significantly, they can record on some tracks while simultaneously playing back others, allowing new sounds to be added alongside those already recorded. The tracks cover the full width of the tape and operate in one direction only (no Side 2), cutting cassette capacity by half. Also, the latest portastudios run at twice normal speed for improved sound quality, reducing capacity by half again. Thus, a C60 cassette might only hold 15 minutes of music, and this together with the need to use only good quality chrome tape, means running costs can be quite high.

The portastudio's microphone and line inputs permit the recording of acoustic sounds or directly connected live or MIDI sequenced synthesisers, drum machines, and yes, even the humble Atari sound chip. The portastudio and MIDI sequencer therefore naturally complement each other. For instance, you could use MIDIMaster on your Atari 8-bit machine to build a synthesiser based multitimbral backing and record it onto one of the portastudio's audio tracks. Then, as separate operations, you can later add other sounds to this using the other tracks - acoustic instruments, solo or backing vocals, sound effects, or anything else that takes your fancy. You can then replay all tracks simultaneously to create a complete musical performance.

STEREO MIXDOWN

There's a snag if you want to give your multi-track creation to someone else to hear. The portastudio's track layout (four tracks versus two), recording speed (9.5 cm/sec versus 4.75), and noise reduction system (dbx or Dolby C versus Dolby B) usually means your cassette can't be played on ordinary cassette machines. You must first convert it to standard stereo cassette format by performing a "stereo mixdown". During this process you can also extensively manipulate the sound on each track, and it's this aspect which provides those additional creative opportunities.

The mixdown is achieved using the portastudio's built-in sound mixer. Its basic function is to take any combination of recorded tracks, mix them together, and route the result into two outputs, i.e. the left and right stereo channels. Additionally, you can use the mixer's "level" controls to independently boost or cut the volume of each track to achieve a good subjective aural balance - for example to ensure the vocalist on track 1 can be heard above the drums track 3!

You can also use these facilities to perform "track bouncing", a technique permitting playback of up to three existing tracks and re-recording their combined sound onto the fourth track. You can also add new sounds live as you go, so the fourth track could carry four different sound components AND you've freed up the other three tracks for reuse. If you repeat the procedure with three tracks, then two, then one, you can actually record TEN different sets of sounds onto just four tracks without bouncing any of the sounds more than once! Clever, eh?

THE SOUND STAGE

There's more. You can create your own stereo image layout by using the mixer's "pan" controls to laterally position the sound from each track anywhere on the stereo "soundstage". For instance, you could position the vocalist and drums in the centre, with acoustic guitar to the left, and synthesiser sounds to the right. You can even create moving sounds if you wish! You can also change the tonal balance of each track using the mixer's "equalisation" facilities. In their simplest form they're similar to the bass and treble controls found on hi-fi amplifiers. They allow you to cut or boost the high and low frequency content of each track, for instance to beef up a bass guitar sound, or add more "edge" to a singer's voice.

Finally, most portastudios are fitted with at least one "effects loop". This enables you to feed the sound from any track to a separate "effects unit", then mix the resulting sound back in with the original at any required level. Effects units are separate accessories which enable you to create electronically generated reverberation, delay, echo, chorus, and a host of other special effects. They're not essential, but do help you produce more "professional sounding" results.

The market is flooded with different effects units, priced from about £25 upwards. The inexpensive ones are often designed as "effects pedals" for electric guitar, but are usually adequate for portastudio use. The most useful one is undoubtedly a reverb unit. With my Yamaha MT3X portastudio I use a Yamaha R100 reverb unit I bought secondhand for £80. It's this which added that "spacious" ambience to my voice on Page 6's World of Computer Music Making cassette. The R100 has 60 different preset reverb, delay, and echo effects, each of which can be edited to produce an "effects patch" to meet any particular requirement.

Taken together, the portastudio's mixdown facilities provide you with endless creative possibilities. With so many variables to play with it's easy to spend far more time doing the mixdown than on creating the original multi-track recording! You need to listen carefully to what you're doing at this stage, so a good pair of ears and a decent monitoring system are essential. Headphones, even high quality ones, are virtually useless for monitoring - you really need to hear the mix via loudspeakers to get it right. You can start by connecting the portastudio to your hi-fi, but you can buy specialised monitor amplifiers and speakers if you're really serious.

Once you've got the mixdown sounding right you can record it onto an ordinary stereo recorder connected to the portastudio's stereo outputs. You'll then have a standard stereo cassette playable on any domestic cassette machine.

ATARI IN THE STUDIO

Did I hear you asking where your Atari fits into all this? Well, I've already mentioned its obvious role - in MIDI sequencing, to produce some of the music you ultimately record onto tape. However, there are more esoteric uses, such as controlling effects units and extending the capabilities of your portastudio.

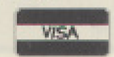
It may surprise you to hear that many effects units now come equipped with MIDI! This allows you to hook them into your MIDI system and control them from your Atari. For example, using MIDI System Exclusive facilities you could save and load customised effects patches you've produced for them, or automatically switch from one effect to another using MIDI Program Change commands. Using an appropriate sequencer on the ST you can create a separate effects track alongside the sequenced music tracks. This can carry MIDI Program change commands aimed specifically at the effects unit. Result - automated switching between different effects, at precisely the right point in the music!

Sometimes even a portastudio's four recording tracks can seem limiting. One way of expanding its capabilities is to synchronise it with a MIDI sequencer running on the ST. You can then record or play back tape tracks with the sequencer locked accurately in step with them. This makes all those sequencer tracks behave like extra tape tracks, so you don't need to record the music they represent onto tape at this point. This frees up tape tracks for additional acoustic recordings, while the sequenced synth and drum machine sounds are played "live" from the sequencer every time you run the tape. The latter don't get onto tape until the final stereo mixdown, when they can be mixed in with the sounds from the portastudio's tape tracks. For this technique to work you need a sequencer which can generate and respond to timing signals, and a portastudio which can record them correctly onto tape. Not all have these capabilities.

You don't get something for nothing, though. You have to dedicate one tape track for use as a sync track. In its simplest form this carries a recording of a stream of MIDI clock signals. Unfortunately, these are unsuitable for recording directly onto tape, so first need converting into audio signals, known as Frequency Shift Keying (FSK) tones. Similarly, on playback the FSK tones need converting back again before any MIDI gear will respond to them. This two-way conversion is handled by a special piece of hardware called a MIDI/FSK convertor, available as an optional extra for the portastudio for around £80.

In use, the sequencer is used to generate the clock signals for recording onto the tape at the required tempo. On playback from the tape, these signals may be thought of as kind of high speed metronome. The sequencer listens to its ticks and matches its own tempo precisely to them, resulting in tape and sequencer running exactly in step. You can now record acoustically onto tape or via MIDI onto the sequencer tracks, knowing that the two are running as one. Effectively you've turned your humble four track portastudio into something much more powerful. For example, if using the Steinberg Twelve sequencer you now have the equivalent of a sixteen track recorder - twelve on the sequencer and four on the portastudio.

Well, I'm out of space again and I've barely scratched the surface of the subject. However, I hope you've read enough to want to begin recording your own musical creations. Who knows, it could be your first step to stardom! ●



WORDMAZE

Peter Dean presents a challenging arcade adventure that will require logic and careful thinking to solve

Wordmaze is an arcade adventure that combines logical puzzles with a teasing anagram.

In a quest to find a missing vase there are sixty-four rooms to explore, with hazards and obstacles to overcome. Help is available in the shape of several objects scattered throughout the maze. Furthermore, a teleport system will enable the player to get round much faster.

The program is written mostly in Basic, although machine code is used to set up the screens. One aspect of the game - a feature not always found in commercial offerings - is the ability to save your progress at any time. This can be done not only to tape or disk but also to memory. Using these functions will avoid continually starting from scratch once all lives have been lost.

HOW TO PLAY

Your goal in Wordmaze is to retrieve a lost vase and return it to the start. Along the way there are problems to solve, skulls to avoid and a puzzle that needs unravelling.

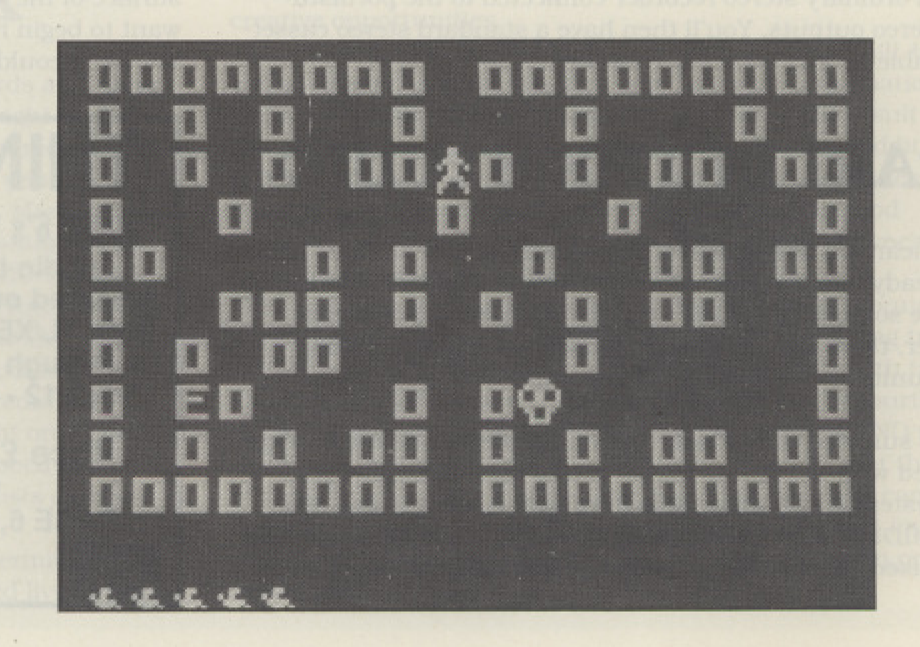
Getting around the maze is simple enough, just point your joystick in the direction you wish to go. To take or negotiate an object, position your man either side of the shape in question and press the joystick button.

The following keys can also be used:

S - save the game at your current position. A further keypress will then be required; the options being shown below the depicted room.
L - load a saved game. Again a further keypress will be required.
Q - quit the game; with the option of starting again.

At the outset your man has five lives and these will be reduced each time a skull is encountered. Hidden somewhere further on, however, is a bottle of life-restoring liquid. In addition to various objects scattered around the maze, the nine individual letters of a password can also be found. These must be collected in their proper order, so the temptation to take the first letter you discover must be resisted. The rule is, work out the anagram before making your collection. Drawing a map is essential.

Good luck and remember ... try not to get involved in too much skullduggery!



WORDMAZE

```
XN 5050 IF PEEK(P)=0 THEN 5030
IT 5060 POKE Z,0:SC=PEEK(P)*256+PEEK(P+1)
   :R=PEEK(P+2):LV=PEEK(P+3):L=PEEK(P+4):
   M=PEEK(P+5)
UO 5070 Q=PEEK(P+6):FOR J=1 TO L:PW$(J,J)
   =CHR$(PEEK(P+6+J)):NEXT J
CK 5080 IF L=0 THEN PW$=""
DA 5090 FOR J=0 TO 32:I(J)=PEEK(P+16+J):N
   EXT J:A=USR(PAGE6,37000,40540,60)
CR 5100 GOSUB 1000:RETURN
NB 5999 REM  QUIT GAME 
LU 6000 POSITION 1,10:? #6;"QUITTING (Y O
   R N)?"
ED 6010 IF PEEK(K)=43 THEN 6040
QU 6020 IF PEEK(K)=35 THEN GOSUB 2000:GOT
   O 100
PS 6030 GOTO 6010
VC 6040 POKE K,255:POSITION 0,10:? #6;"
    ANOTHER GAME?      "
AG 6050 IF I(9) THEN POSITION 2,12:? #6;"
   CONGRATULATIONS":FOR J=1 TO 50:NEXT J
LH 6060 IF PEEK(K)=43 THEN POKE Z,0:A=USR
   (PAGE6,37000,40540,60):GOTO 70
MV 6070 IF PEEK(K)=35 THEN A=USR(58484)
EF 6080 IF I(9) THEN A=USR(PAGE6,37000,40
   560,20):FOR J=1 TO 50:NEXT J
SK 6090 GOTO 6050
BA 6999 REM  DEAD! 
QQ 7000 IF I(4)=0 THEN Q=Q-1:GOSUB 2000:G
   OTO 260
JF 7010 LV=LV-1:FOR J=150 TO 255:SOUND 0,
   J,10,6:SOUND 1,J-20,10,6:NEXT J
PB 7020 SOUND 0,0,0,0:SOUND 1,0,0,0:IF LV
   =0 THEN POKE 40581,0:GOTO 6040
ZR 7030 FOR D=1 TO 100:NEXT D:POKE TOP+M,
   0:POKE Z,0:GOSUB 1000:GOTO 90
UB 7999 REM  NEW CHARACTERS 
YH 8000 POKE 106,PEEK(106)-24:ADDR=PEEK(1
   06)*256
ZY 8010 A=USR(PAGE6,57344,ADDR,1024)
YC 8020 RESTORE 9640:POS=ADDR+8:FOR J=0 T
   O 119:READ A:POKE POS+J,A:NEXT J
HP 8030 POS=ADDR+208:FOR J=0 TO 23:READ A
   :POKE POS+J,A:NEXT J
YD 8040 POKE 756,PEEK(106)
AV 8050 RETURN
PQ 8999 REM  READ M/C & SCREEN DATA 
GG 9000 FOR J=1536 TO 1753:READ A:POKE J,
   A:NEXT J
LL 9010 FOR J=36500 TO 36572:READ A:POKE
   J,A:NEXT J
BG 9020 FOR J=1 TO 732 STEP 20:READ A$:B$
   (J)=A$:NEXT J:A=USR(PAGE6,ADR(B$),3763
   2,732):A=USR(1727)
KJ 9030 FOR J=1 TO 64:READ A:E(J)=A:NEXT
   J:FOR J=0 TO 8:READ A,D:C(J)=A:D(J)=D:
   NEXT J
BA 9040 FOR J=1 TO 9:READ A:D$(J,J)=CHR$(
   A+100):NEXT J:FOR J=1 TO 30:READ A:M(A
   )=1:NEXT J
OV 9050 FOR J=37000 TO 37059:POKE J,0:NEX
   T J:POKE 1782,10:POKE 1791,10
AZ 9060 RETURN
OA 9099 REM  MACHINE CODE DATA 
OA 9100 DATA 160,0,104,104,133,206,104,13
   3,205,104,133,208,104,133,207,104,201,
   0,240,15,170,177,205,145,207,200,208
EK 9110 DATA 249,230,208,230,206,202,208,
   242,104,201,0,240,11,133,204,177,205,1
   45,207,200,196,204,208,247,96,162,0
CI 9120 DATA 169,149,133,206,165,88,133,2
   07,165,89,133,208,160,0,189,246,6,10,1
   0,133,203,10,10,24,101,203,133,205
LP 9130 DATA 177,205,145,207,200,192,20,2
   08,247,165,207,24,105,20,133,207,165,2
   08,105,0,133,208,232,224,10,208,213
VL 9140 DATA 104,104,104,162,0,74,144,3,1
   42,137,157,74,144,3,142,246,157,74,144
   ,3,142,229,157,74,144,3,142,61,158,96
PY 9150 DATA 32,68,218,104,201,4,208,43,1
   04,104,10,10,10,10,170,104,104,157,66,
   3,104,157,69,3,104,157,68
OC 9160 DATA 3,104,157,73,3,104,157,72,3,
   32,86,228,132,203,189,72,3,133,212,189
   ,73,3,133,213,96
FU 9170 DATA 162,3,160,0,132,205,169,147,
   133,206,177,205,56,233,48,145,205,200,
   208,246,230,206,202,208,241,104,96
UC 9180 DATA 160,0,132,207,132,208,166,20
   9,202,224,99,240,3,32,202,142,166,209,
   232,224,116,240,3,32,202,142,165,209
WN 9190 DATA 24,105,20,170,224,187,240,3,
   32,202,142,165,209,56,233,20,170,224,7
   ,240,3,32,202,142,104,96,189,130
OX 9200 DATA 157,201,4,176,11,230,207,200
   ,150,202,201,0,240,2,132,208,96
IP 9209 REM  ROOM DATA 
ZL 9210 DATA 42941373468327955768
QJ 9220 DATA 19433619278340372985
VC 9230 DATA 26861075576018943687
OR 9240 DATA 23945406298448972053
QN 9250 DATA 57891865340620945809
WK 9260 DATA 16753870298458971463
GK 9270 DATA 48681795390826745797
IO 9280 DATA 20644689107358092065
VF 9290 DATA 30972834570918658068
KY 9300 DATA 25734296103936891074
JY 9310 DATA 47682905590728345810
ME 9320 DATA 23934986270337891063
SL 9330 DATA 56891074487629855960
PQ 9340 DATA 28743086179538671074
OW 9350 DATA 57082963491820734836
NG 9360 DATA 19703689286458270613
CW 9370 DATA 49782065560819735897
WE 9380 DATA 26343700292546781795
RZ 9390 DATA 39680714380729635079
WS 9400 DATA 26854700196348902678
QP 9410 DATA 31081965567918233476
MD 9420 DATA 04804986170558372094
FP 9430 DATA 50982703370610944603
PP 9440 DATA 25755689173343791004
SR 9450 DATA 39682875387690135089
QI 9460 DATA 27639660184507007000
BI 9470 DATA 07000700007007007700
NA 9480 DATA 70700007007007007770
FW 9490 DATA 70707077007007700000
UU 9500 DATA 70707700707007070707
SF 9510 DATA 70707077077007070700
FD 9520 DATA 70007000707007700070
VY 9530 DATA 70070077077007707070
IB 9540 DATA 00707077707007007000
HQ 9550 DATA 70700000007007070770
BK 9560 DATA 00007000007007777777
MY 9570 DATA 77777777770
JB 9579 REM  EXIT DATA 
DE 9580 DATA 10,6,6,6,12,10,6,12,9,10,6,1
   2,1,9,2,13,3,5,2,7,6,5,10,13,10,6,6,6,
   6,14,5,9
DG 9590 DATA 9,2,12,10,6,5,2,13,3,6,5,3,1
   4,12,2,13,10,14,14,12,1,9,2,5,1,1,1,3,
   6,7,6,4
BP 9599 REM  MISC DATA 
IV 9600 DATA 132,173,197,148,70,173,140,1
   32,205,161,207,155,91,141,68,121,196,4
   2
IW 9610 DATA 4,-3,14,0,1,13,17,5,10
LJ 9620 DATA 2,5,8,9,11,14,16,18,20,23,25
   ,26,28,29,32,34,36,38,42,44,45,48,50,5
   2,53,55,57,58,60,62
CT 9630 DATA 13,15,64,41,53,57,44,55,59,0
   ,0,29,10,0,0,0,9,0,0,58,47,0,0,5,0,22,
   0,0,34,19,0,0,26
AF 9639 REM  NEW CHARACTER DATA 
WE 9640 DATA 24,24,60,90,24,60,102,66
HY 9650 DATA 24,80,60,26,28,22,50,33
TR 9660 DATA 24,10,60,88,56,104,76,132
SA 9670 DATA 192,160,160,190,190,170,162,
   192
PP 9680 DATA 62,28,28,28,20,28,20,28
AE 9690 DATA 56,40,16,16,16,56,56,56
SB 9700 DATA 0,126,102,102,102,102,126,0
BR 9710 DATA 0,32,112,248,252,254,255,0
JF 9720 DATA 0,126,72,126,18,126,72,126
IA 9730 DATA 255,129,189,153,153,153,129,
   255
IE 9740 DATA 126,66,122,98,110,126,110,12
   6
RD 9750 DATA 36,36,60,36,60,36,60,36
FN 9760 DATA 24,60,126,66,90,66,94,126
PF 9770 DATA 60,126,153,153,255,102,36,60
OF 9780 DATA 24,126,189,189,189,126,60,24
QA 9790 DATA 126,66,90,90,66,90,90,90
KE 9800 DATA 124,68,68,124,84,124,84,124
FC 9810 DATA 0,0,255,255,255,255,0,0
```

WORDMAZE

```
EI 1 REM ********************************
PL 2 REM *          WORDMAZE            *
QH 3 REM *    an arcade adventure       *
RR 4 REM *             by               *
AV 5 REM *         Peter Dean           *
ED 6 REM * ---------------------------- *
XT 7 REM *   NEW ATARI USER - DEC 90    *
EP 8 REM ********************************
RX 10 GRAPHICS 1:Z=559:POKE Z,0:POKE 16,6
   4:POKE 53774,64
RA 20 COL=12:POKE 708,COL:POKE 709,28:POK
   E 710,188:POKE 711,140
HE 30 DL=PEEK(560)+PEEK(561)*256:POKE DL+
   3,71:FOR J=6 TO 14:POKE DL+J,7:NEXT J:
   POKE DL+10,7
AV 40 DIM I(32),E(64),M(64),C(8),D(8),PW$
   (9),D$(9),A$(20),B$(732)
ZY 50 PAGE6=1536:K=764:ST=632:BUT=644
AU 60 GOSUB 9000:GOSUB 8000
TK 70 SC=40342:TOP=SC-20:MAN=1:R=1:L=0:LV
   =5:Q=6:RESTORE 9630:FOR J=0 TO 32:READ
    A:I(J)=A:NEXT J
OR 80 PW$="":GOSUB 1000
UM 90 POKE Z,34
VK 99 REM  PLAYER MOVEMENT
QN 100 S=PEEK(ST):IF S<15 THEN POKE 77,0
CX 110 IF M(R)=1 THEN CYCLE=CYCLE+1:SOUND
    0,J+(CYCLE*5),10,2
LP 120 IF S=11 AND PEEK(SC-1)=0 THEN SC=S
   C-1:POKE SC+1,0:MAN=3:GOTO 160
OD 130 IF S=7 AND PEEK(SC+1)=0 THEN SC=SC
   +1:POKE SC-1,0:MAN=2:GOTO 170
JC 140 IF S=14 AND PEEK(SC-20)=0 THEN SC=
   SC-20:POKE SC+20,0:MAN=1:GOTO 180
KL 150 IF S=13 AND PEEK(SC+20)=0 THEN SC=
   SC+20:POKE SC-20,0:MAN=1:GOTO 190
PH 160 IF SC=40420 THEN R=R-1:SC=SC+17:GO
   SUB 1000
VD 170 IF SC=40438 THEN R=R+1:SC=SC-17:GO
   SUB 1000
NX 180 IF SC=40329 THEN R=R-8:SC=SC+160:G
   OSUB 1000
ON 190 IF SC=40509 THEN R=R+8:SC=SC-160:G
   OSUB 1000
MB 200 POKE SC,MAN:SOUND 0,0,0,0
IR 210 IF CYCLE<>4 THEN 260
JH 220 POKE TOP+M,0:A=USR(36500):CYCLE=0
HD 230 N=PEEK(207):J=INT(RND(0)*N)+1:M=PE
   EK(202+J)
BF 240 POKE 209,M:POKE TOP+M,14
BN 250 IF PEEK(208)=J THEN 7000
CE 260 IF B=0 AND PEEK(BUT)=0 THEN GOSUB
   300
OV 270 IF PEEK(BUT) THEN B=0
IM 280 IF PEEK(K)<>255 THEN 3000
YW 290 FLG=0:GOTO 100
YR 299 REM  BUTTON PRESSED
QE 300 B=1:T=1:N=PEEK(SC+T):IF N=0 OR N=7
    THEN T=-1:N=PEEK(SC+T)
FX 310 IF N=0 OR N=7 THEN RETURN
JZ 320 FOR J=0 TO 8:IF N=C(J) THEN I(J)=0
   :N=0:GOSUB 410:GOTO 340
GJ 330 NEXT J
ST 340 IF N>96 AND N<118 THEN L=L+1:PW$(L
   ,L)=CHR$(N):I(N-85)=0:N=0:GOSUB 410
MG 350 IF N=8 AND I(2)=0 THEN I(11)=0:N=0
LK 360 IF N=10 THEN 420
WQ 370 J=2:D=-2:IF T<0 THEN J=-2:D=2
GV 380 IF N=154 AND I(0)=0 OR N=90 AND I(
   7)=0 OR N=218 AND I(8)=0 THEN SC=SC+J:
   T=D:N=0
UR 390 IF N=11 AND PW$=D$ OR N=9 AND I(3)
   =0 THEN SC=SC+J:T=D:N=0
MS 400 POKE SC+T,N:GOSUB 2000:RETURN
HX 410 FOR J=80 TO 40 STEP -8:SOUND 0,J,1
   0,12:NEXT J:SOUND 0,0,0,0:RETURN
QG 420 POKE Z,0:IF R=39 THEN R=3:SC=40354
   :GOTO 460
TV 430 IF R=61 THEN R=30:SC=40345:GOTO 46
   0
RJ 440 IF R=30 THEN R=61:SC=40489
BG 450 IF R=3 THEN R=39:SC=40464
XS 460 FOR J=250 TO 40 STEP -30:FOR D=12
   TO 2 STEP -2:SOUND 0,J,10,D:NEXT D:NEX
   T J
DL 470 CLOSE #1:GOSUB 1000:GOTO 90
EP 999 REM  SCREEN DATA
UC 1000 A=USR(PAGE6,37624+(R*8),1783,8):A
   =USR(1588,E(R)):SOUND 0,0,0,0
PM 1010 IF I(1) AND (R=17 OR R=4 OR R=7)
   THEN POKE 708,0:POSITION 1,10:? #6;"th
   is room is dark ":GOSUB 2010:RETURN
BZ 1020 CYCLE=0:IF FLG THEN 1040
KO 1030 M=87:IF PEEK(TOP+M) THEN M=M+20
EB 1040 POKE 209,M
JQ 1050 J=-1:N=7:COL=COL+16
CK 1060 IF COL>255 THEN COL=12
VF 1070 POKE 708,COL:POKE SC,MAN
VE 1080 FOR D=0 TO 8:IF I(D)=R THEN N=C(D
   ):J=D(D):GOTO 1320
DN 1090 NEXT D
NX 1100 IF R=3 THEN N=10:J=33
ST 1110 IF R=30 THEN N=10:J=24
DZ 1120 IF R=61 THEN N=10:J=168
ZB 1130 IF R=39 THEN N=10:J=143
PW 1140 IF R=63 THEN N=154:J=88
CL 1150 IF R=52 THEN N=9:J=162
HB 1160 IF R=12 THEN N=154:J=82
MC 1170 IF R=37 THEN N=218:J=162
XS 1180 IF R=21 THEN N=90:J=130
AL 1190 IF R=50 THEN N=11:J=164
ZQ 1200 IF R=27 THEN N=90:J=130
BJ 1210 IF R=43 THEN N=218:J=100
LF 1220 IF I(11)=R THEN N=8:J=48
VF 1230 IF I(29)=R THEN N=114:J=61
TG 1240 IF I(23)=R THEN N=108:J=50
QD 1250 IF I(20)=R THEN N=105:J=60
XP 1260 IF I(28)=R THEN N=113:J=82
TE 1270 IF I(19)=R THEN N=104:J=42
EI 1280 IF I(32)=R THEN N=117:J=68
UC 1290 IF I(12)=R THEN N=97:J=43
YY 1300 IF I(25)=R THEN N=110:J=135
VK 1310 IF I(16)=R THEN N=101:J=141
QB 1320 POKE TOP+J,N
YX 2000 A=USR(PAGE6,37000,40520,20)
LQ 2010 IF I(6)=0 THEN POSITION 1,11:? #6
   ;"ROOM ";R;"  "
MX 2020 POSITION 10,11:? #6;PW$
FA 2030 IF Q=0 THEN A=USR(PAGE6,37000,405
   60,20):I(4)=65:POKE 40594,0
IC 2040 FOR J=0 TO 8:IF I(J)=0 THEN POKE
   40590+J,C(J)
FQ 2050 NEXT J
FL 2060 IF I(4)=0 THEN POSITION 4,12:? #6
   ;"POTION";:FOR J=1 TO Q:? #6;CHR$(188)
   ;:NEXT J:? #6;"      "
KE 2070 POSITION 1,13:FOR J=1 TO LV:? #6;
   CHR$(130);:NEXT J:? #6;"     "
ZU 2080 IF R=1 AND I(5)=0 THEN I(9)=1:GOT
   O 6040
BB 2090 RETURN
GH 2999 REM  KEYPRESS
RC 3000 IF PEEK(K)=62 THEN J=0:GOTO 4000
MJ 3010 IF PEEK(K)=0 THEN J=50:GOTO 4000
CT 3020 IF PEEK(K)=47 THEN 6000
GC 3030 POKE K,255:GOTO 290
CS 3999 REM  SAVE AND LOAD OPTIONS
AV 4000 POSITION 1,10:? #6;"Tape Disc Ram
    Exit"
MU 4010 FLG=1:N=PEEK(K):IF N=40 THEN P=39
   000:GOSUB 5000+J:GOTO 90
CM 4020 IF N=45 THEN N=0:GOTO 4100+J
FF 4030 IF N=58 THEN N=1:GOTO 4100+J
WX 4040 IF N=42 THEN GOSUB 2000:GOTO 100
PA 4050 GOTO 4010
QR 4100 A$="C:":IF N THEN A$="D:GAMSAV"
DP 4110 P=39500:GOSUB 5000:TRAP 470
AR 4120 OPEN #1,8,0,A$:A=USR(1675,1,11,P,
   50):CLOSE #1:GOTO 90
RG 4150 A$="C:":IF N THEN A$="D:GAMSAV"
TU 4160 P=39500:TRAP 470
MT 4170 OPEN #1,4,0,A$:A=USR(1675,1,7,P,5
   0):CLOSE #1:GOSUB 5050:GOTO 90
EG 4999 REM  SAVE POSITION
EA 5000 POKE Z,0:POKE P,INT(SC/256):POKE
   P+1,SC-(PEEK(P)*256):POKE P+2,R:POKE P
   +3,LV:POKE P+4,L
VB 5010 POKE P+5,M:POKE P+6,Q:FOR J=0 TO
   8:POKE P+7+J,PEEK(ADR(PW$)+J):NEXT J
QE 5020 FOR J=0 TO 32:POKE P+16+J,I(J):NE
   XT J
DK 5030 GOSUB 2000:RETURN
CP 5049 REM  LOAD SAVED GAME
```

continued

U.S.A.A.F.



Norman Davies relives the Daytime Bombing of Nazi Europe by the USAF

When Lord Baden Powell gave the Scout movement its motto "Be Prepared" he was probably thinking of his war experiences. Thus it is with this wargame from Strategic Simulations. With its attractive packaging the first inclination is for the player to load up the drive and "go to war", but this is a game for the tactician and strategist, a game to be played at Command level so be warned and "Be Prepared"!

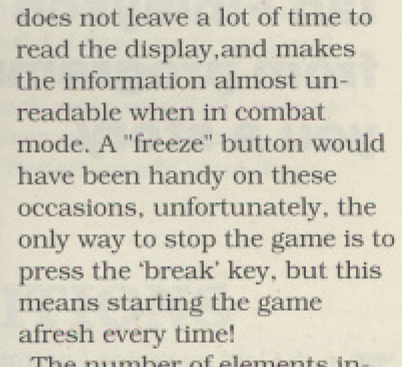
It is recommended that the potential player first study the well-printed and somewhat numerous rules as such time will be well spent and is essential for maximum pleasure from the game.

With twelve three-column pages of instructions to read any would be player will be hard pressed to assimilate enough information to play even a short game, but with the opportunity to chose a computer v. computer mode of play it is possible, with the manual to hand, to just sit and watch a short game being played through automatically. If only the producers of this game had thought to give a short step-by-step introductory game in the manual it would, I'm sure, have been a big help to a basic understanding of the play. As has been said, however, the manual is very detailed and with study it is possible to pick up the basics of the game fairly soon.

The graphics consist mainly of a map of Europe with all the main cities accurately shown with orange fill-in. Switzerland is shown as a white striped area. The numerous airfields are shown by a small green cross which becomes white when the airfield is an active one. Besides this map being shown on the screen the kit also includes two printed versions of the full map divided into six weather zones, one for each player.

If playing a first game it is recommended to set the delay factor, which slows down the various information flashes which appear at the bottom of the screen to the maximum value (9), even so, this

Title:	U.S.A.A.F.
Publisher:	SSI
Price:	XL/XE
Reviewer:	£16.95



does not leave a lot of time to read the display,and makes the information almost unreadable when in combat mode. A "freeze" button would have been handy on these occasions, unfortunately, the only way to stop the game is to press the 'break' key, but this means starting the game afresh every time!

The number of elements involved in playing this game is truly remarkable, from choosing your raid's destination to deciding the type of aircraft and its fighter support, assessing fuel load, weather reports and their restrictions on altitude, where to cross the coast, secondary target, type of industry to attack. From the German side - where to place your flak, what type should it be - heavy or light, where will the enemy strike, what fighter group to send up, what type of aircraft do we want to build? Both players must also take into account the of phase game they are playing, there being three phases: 1 August 1943 - 1 February 1944 - 1 October 1944, which means of course that certain types of aircraft were not available until later in the campaign.

Taking into account the tables for industrial production levels at the back of the manual, the calculations for bombing results and bomb load etc. printed in a lighter colour and intended for the very advanced player, it is obvious that this game was created for only the highest echelon of wargamer! As such I can recommend it to them, but for the average wargamer I think that the necessity to study such a mass of instruction for what in the end will only be a resulting calculation would not give enough game satisfaction to make it worthwhile.

A little more graphic animation, for example separate logos for fighter and bomber formation would I believe make the game a little more acceptable, but all in all it is really for the Boffins to play. If you have one or two wargames under your belt then you might just be well enoughed prepared to do battle with this one.

This program, along with other wargames is available from Miles Better Software of Cannock who kindly supplied the review copy.

Ian Finlayson's

TUTORIAL SUBROUTINES

WHAT'S A MODEM?

Ian Finlayson takes a break from programming to tell you a story

In the last magazine I promised to tell you a story, and this month instead of a subroutine I am going to recount a tale of my short exploration of computer communications via the telephone. I hope that this will be as instructive as a tutorial subroutine, but I do not promise to reveal all - I have learnt a lot, but I have really only dabbled in telecommunication. You will see as the story unfolds that there is a lot to discover.

It started back in May when a friend asked me if I would like to borrow a modem. Well, like most computer hobbyists, I had read about the wonderful world of bulletin boards and databases waiting out there and wondered whether it would be worth joining in, and here was a chance to try it out for nothing so of course I accepted the kind offer.

THE EQUIPMENT

The first thing to do was to find out just what I was borrowing and see if that alone would enable me to go on line. The equipment was as follows:

Pace Linnet V21/V23 Modem complete with power supply
Datatari Serial Interface
Multi-Viewterm software
Long telephone extension lead

I browsed the manuals and found that this was indeed all I needed to get started. The long telephone extension lead was essential as my 'phone is in the downstairs hall and the computer is in the spare room/study upstairs. I wondered a little about the Datatari interface as I already have an 850 interface but the user guide suggested that the Datatari would be better as it can handle 1200/75 baud while the 850 can not (but see later discoveries). I connected all up and was ready to start.

OFF-LINE START UP

The first time I switched on without the telephone connected as I wanted to get used to the various commands and functions contained in the multi-viewterm software before connecting to the telephone lines and incurring telephone charges. At first I found the use of multi-viewterm rather difficult. The manual is terse and although it tells you how the viewterm software works it does not tell you anything about how to dial a number and other such basics that a newcomer needs to know. The software seemed to be heavily orientated towards use with Viewdata systems (Prestel, Micronet etc) which was disappointing as I did not really want to get involved with services you have to subscribe to so much as the hobbyists bulletin boards which generally use ANSI terminal mode rather than Viewdata. To be fair to Miracle Technology, I have since discovered that part of my initial disappointment with this software was due to my own ignorance, and part was due to the fact that the user guide did not have any reference to the fact that the software has had a radical update. More recently I have discovered a file on the original disk called VIEW.ME which describes the changes. It makes ordinary communications with a bulletin board much easier and includes important features such as the ability to upload and download files with Xmodem error checking.

GOING ON LINE

Having played around with the software in an off-line mode for a little while, I was keen to go on-line. I found out how to dial and access other facilities of the Linnet modem from its comprehensive manual and with some excitement dialled for the first time. The modem carried out the dialling sequence, making the telephone tinkle as it went. Then silence. Then the engaged tone. Here is the first disappointment. Although there are now quite a number of bulletin boards in the UK they spring up and die off quite quickly. Only the best survive and they become very popular, so when you dial you will often get an engaged tone from a popular board or a number unobtainable from one which has been discontinued because the Sysop has given up. You just have to be persistent. The first time you get a connection is exciting. Usually the first thing that comes over is a string of garbage as the computer or modem exchanges information to ensure both ends are working at the same speed. Then a request for you to hit RETURN and the bulletin board will announce itself and go into a log in sequence. Most boards will only give you very limited access on your first visit, but you can come away with your own login name, number and password for future visits when you will be given more privileges.

BE PREPARED

The first thing you will find when you get connected is that you have forgotten all the preparations you had intended to make. Where is the paper and pencil you were going to have ready? Is there a blank formatted disk anywhere to save data or files? All the time you are connected you are adding to your telephone bill (often at long distance rates) so it is as well to be prepared.

40 COLUMN SCREEN

I soon found that there is another problem with the Atari when it comes to talking to bulletin boards. Many of them are set up for computers with 80 column screens so on an Atari screen all the lines wrap at the 40 column limit and nothing seems to line up. This can make menus and instructions very hard to follow. One way to improve matters is to have a printer on line so that you can see the text in hard copy 80 columns wide, but this has the disadvantage of slowing things down (unless you have a large printer buffer) and using large quantities of paper. An alternative is to keep saving your data buffer to a disk file which can be looked at in slow time after you log off. This can speed things up but can only be used when you know your way round the particular bulletin board as it does not help the clarity. If you are accessing Viewdata services there is no problem as they use a 40 column format which will display correctly on your TV screen.

MINI OFFICE COMMS AND ARK SOFTWARE

The Multi-Viewterm software does handle Viewdata satisfactorily, but my initial disappointment with this software package led me to try and find others. I had a copy of Mini Office II so I tried the Communications Module. This seems at first to be more user friendly than Viewterm, but having used both more extensively I would now choose Viewterm - it does not have as powerful a Macro language system as Mini Office but this is outweighed by its Xmodem file transfer and Viewdata capabilities. I have tried downloading using Mini Office and because there is no error checking there always seems to be a flaw in the received file.

Finally I sent off for the Ark Communications disk from the Page 6 library, and for general use this is the program for me. It also provides a capability for communicating at the split baud rate 1200/75 via the 850 interface. All the programs on the disk were supplied by the Ark BBS so they are "approved" by a regular user. Unfortunately since I received the disk I have not been able to raise the Ark - it seems to have gone off the air, and I have not yet found another Bulletin Board with 8 bit software to download. The Village used to have some but their 8 bit section seems to have been deleted.

A CHEAP MODEM

All this fun was had with a borrowed modem, but the loan did not go on for ever so did I rush out and buy myself a modem? Well, that is another story! I was (as I thought) very lucky. I was offered a Linnet 1200 modem for £30. I no longer had the borrowed Datatari interface, but as I already own an 850 interface all I needed was a connecting cable. I ordered the parts from Maplin and made one up myself. When I connected up and tried to get going I was a bit suspicious as several of the lights on the modem came on before I started to dial, and then I could get no communication between the computer and the modem let alone with the telephone system. Of course I blamed my own cable, but after extensive checks I decided that it had to be the modem itself. I thought that the sensible thing to do would be to go to the manufacturer Pace for a quote for a repair. They are a British company so this was feasible. I was given a quote for a routine service of £39 plus VAT, a sum that was on the limit of what I was prepared to spend, so I sent it of (postage about £4). A little later I had a letter to say that the modem was badly damaged and the repair bill would be £75 plus VAT. My hobby will not stand this cost so I have reluctantly asked Pace to send the modem back. That was several weeks ago and I have yet to see the machine, but it does not really matter. This has been quite a disappointment as the Linnet modems are intelligent and therefore only need simple software to drive them. They have a 1200/75 capability and buffer memory so they can talk to the host computer at 1200/75 whilst talking to your terminal at the highest speed that your software will allow (in my case 1200/1200) thus getting round the limitation of the 850 interface. Still the experience has not been all wasted, I have made up a null modem cable to connect my Atari to my PC so I can use the comms software to pass data back and forth. Will I ever be allowed to write for New Atari User again if I admit that this article was written using Word Perfect on a PC and then downloaded to an Atari disk?

DEFINITIONS

There is a great deal of jargon in the computer industry and the telecommunications area is no exception. When you start to try and find out what it all means it can be very obscure as those who have some expertise tend to assume that others will understand all the basic terms. Here then are some of the more important terms I have come across, and what I understand them to mean.

MODEM - A modem is a MODulator/DEModulator. That is a device which will take the output of the computer and change it into a form that is acceptable to the telephone system and also take input from the telephone line and convert it for the computer.

BAUD - A BAUD is a measure of rate of data transfer - one bit per second. There are 8 bits per byte and some added control bits making a total of approximately 10 bits per byte, thus 10 baud is approximately 1 byte per sec. We have to take account of the extra data that has to be sent to ensure smooth and accurate data transfer (block protocols, checksums etc) this can be up to a 50% overhead. At the very best then 1200 Baud is thus 120 bytes per second / 7200 bytes per minute so a 32 Kbyte file will about 4.5 Minutes at 1200 baud or 18 minutes at 300 baud.

DUPLEX - This term describes the way the computer gets an "echo" back from the receiver. It is quite disconcerting if you type things in and see nothing happening. Full duplex is the normal and this expects an echo to be received. Half duplex is occasionally required to provide a local echo. Do not worry if you select half duplex when full duplex is needed all that happens is you get repeated lines on your screen.

ASCII/ATASCII - These terms are probably familiar to you. The normal standard character set is ASCII but Atari 8 bit computers use a slightly different one called ATASCII. Nearly all communications are made in ASCII, but some Atari bulletin

continued overleaf ☛

TUTORIAL SUBROUTINES continued

boards use ATASCII so that any graphics characters etc. in a file which is to be transferred come across correctly. If you are only handling plain text, numbers and punctuation it should not matter which you use.

PARITY BIT - An extra bit on each data package for error checking. Set to zero unless you know that the terminal at the other end is set differently.

PROTOCOLS - You will see modems described with code numbers beginning with a V. These are a shorthand which describes the capabilities of the modem against a set of standard definitions. The most common are :

V21 Baud rate of 300/300
V23 Baud rates of 1200/75 or 75/1200
V22bis Baud rates of 1200/1200

In more expensive modems there are further facilities for error correction and data compression which are incorporated to get the maximum data transfer rate from the telephone system without loss of accuracy. These are normally far too expensive for the amateur user. You may see numbers such as: V25 - Auto Answering and V42 - Error correction protocol.

VIEWDATA - This is the terminal mode which is right for accessing subscription services such as Prestel. It is like the Teletext information systems available on some televisions and can contain block graphics and colour. It is not generally used by amateur bulletin boards. Viewdata services usually operate at 1200/75 split baud rate.

ANSI - This is the terminal mode used for most text communication such as used with amateur bulletin boards. There are many other types of terminal emulation in the computer world but you will probably not come across them in Atari 8 bit comms packages. ANSI terminal mode is sometimes just called Terminal mode to distinguish it from Viewdata mode.

Xmodem - A file transfer method which includes a simple error checking algorithm, this was one of the first error checking systems and is still widely used. There are many other such systems including variations and developments of Xmodem, Ymodem and Zmodem. For file upload and download you must use the same version as the terminal you are communicating with.

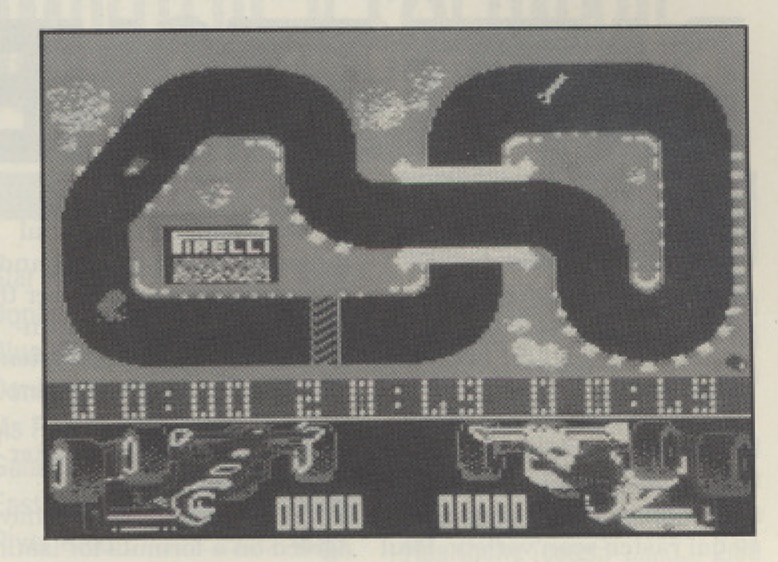
AND LASTLY

If you have never tried telecommunication and are thinking of getting started I would say get the best modem you can afford, preferably with 1200 Baud and Hayes compatibility. There is a lot of fun in exchanging ideas with others via electronic mail and BBS and it is not difficult. Many BBS run sections for special interest groups (SIG) where you can exchange information on your hobby or other specialist subjects. Availability of software for downloading is quite another matter, don't expect to be able to find masses of free 8 bit programs.

If you already use an Atari for communications I would be interested in hearing from any of you. Who knows, if there is enough interest I may yet get my modem repaired. You can write to me as follows

Ian Finlayson, 60 Roundstone Crescent, East Preston, West Sussex, BN16 1DQ

GRAND PRIX SIMULATOR



Will Ayrton Senna win the championship? Will Nigel Mansell change his mind and drive for Williams again? Will Murray Walker commentate through an entire race without yelling "sensational"?! As the Formula One drivers line up at Monza for the start of the Italian Grand Prix, these questions, and many more, remain unanswered. By the time this magazine reaches the newsagents the championship will have been decided but my experience of World Cup football (see Kick-Off in issue 45) has taught me not to make predictions! Whatever happens, if you can't wait for the next season to come around then you could do a lot worse than obtain a copy of Codemasters' GRAND PRIX SIMULATOR.

Endorsed by Johnny Dumfries, an up-and-coming driver who is best known for his contribution to Jaguar's victory at Le Mans in 1988, the game is a one-against-one racing game reminiscent of the arcade hit Supersprint. After the rather lengthy loading sequence (and having manually stopped the tape drive motor since this doesn't occur automatically) you're welcomed by a lively musical composition and an attractive opening screen depicting two artistically drawn Formula One cars. Select a one or two player game and the scene switches to an overhead view of the first in a series of twelve cunningly designed racing circuits. Although restricted by the size of the playfield (around two thirds of the screen), the tracks are liberally equipped with bends, bridges, oil patches and other obstacles to really test your driving skills.

Controlling the minute car isn't easy but after some practice you can proceed with the main business of trying to complete the specified number of laps before your opponent. A rather peculiar-sounding digitised voice counts down to the start of the race - later, you'll hear it announcing the winning car's position and warning 'game over' (full marks for effort!). Sliding through corners, negotiating bridges with zero visibility and nudging your opponent off the track are just a few of the capers ahead of you in the battle for driver supremacy. It all adds up to an exceptionally exciting challenge, especially if you can find some human competition!

If you enjoyed Codemasters' BMX Simulator, there's little doubt you will find this game equally addictive. With excellent graphics, interesting sonics and immense playability, it's possibly more fun than the real thing!

Title: **GRAND PRIX SIMULATOR**
Publisher: **Codemasters**
Price: **£1.99 cassette**
Players: **1/2**
Loading: **18'40"**
Reviewed by Paul Rixon

BOMBFUSION

Reviewed in NAU issue 38, the ST release of BOMBFUSION received less than a glowing recommendation(!). It was described in no uncertain terms as comparable to the worst example of an 8-bit budget game, so I was quite excited when the genuine bargain-priced version arrived on my desk for review! Would it prove to be the ultimate embarrassment to ST owners and the best XL demo ever? Alas, no! Both programs are actually rather similar and although I wouldn't attribute all of the ST reviewer's comments to the 8-bit game, I can't avoid mentioning its conspicuously Spectrumish appearance!

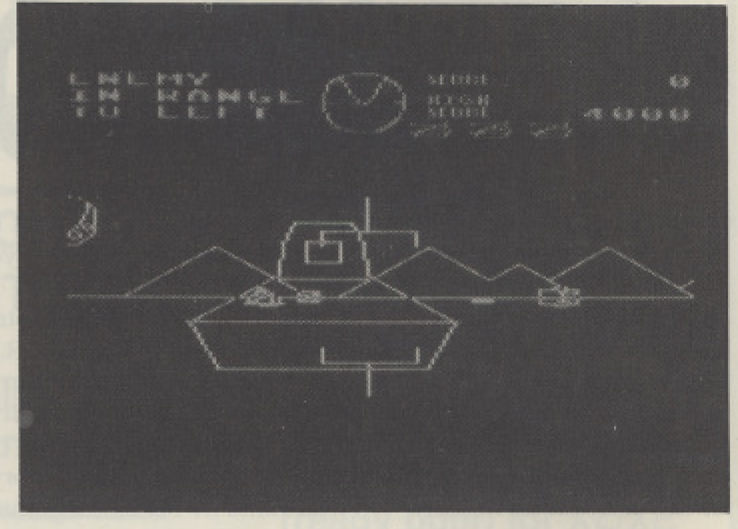
Obviously inviting accusations of bad taste, the plot involves terrorist bombs planted at a Nuclear Processing Plant and your efforts, as an ex-super hero whose mode of transportation was apparently designed by that inventive Mr Sinclair, to avert a global catastrophe (yawn!). Not only are you required to defuse the dangerous devices but you must also collect wandering fuel capsules from the processing area and return them to a storage container. Unfortunately you have a limited radiation shield which is depleted rapidly if the countdown timer of a primed explosive reaches zero or you collide with a certain object, documented without further explanation as 'The Balloid'.

Bombfusion is a platform game presented as a series of single-screen levels and the graphics on each consist of blocky ledges set against a black background with single coloured PMG's defining the bombs, fuel rods and the main character. On the plus side, the joystick controls are very responsive making it pleasantly simple to negotiate the platforms. Music accompanying the increasingly monotonous action seems reasonable at first, but once you've heard it repeat for the umpteenth time you begin to wish that the author had, in his wisdom, remembered to include a facility to turn it off! There isn't a pause option either, so if the 'phone rings as you're battling through the twenty fifth level (assuming there are more than the three I've seen!) then it's just too bad!

Mastertronic's continued presence in the 8-bit market is certainly to be encouraged, but I hope that their future offerings will be of a standard dictated by hardware capability. Bombfusion may be a good buy for younger players in view of its simplicity, but anyone who wants to see their Atari's ability exploited will have to look elsewhere.

Title: **BOMBFUSION**
Publisher: **Mastertronic**
Price: **£1.99 cassette**
Players: **1**
Loading: **9'10"**
Reviewed by Paul Rixon

BATTLEZONE



Long-term arcade addicts will recognise BATTLEZONE as the classic tank shoot 'em up. Despite its considerable arcade popularity, the home computer version was not quick to appear - possibly a consequence of the game's use of vector graphics rather than the usual raster-scan variety. Paul Woakes' brilliant Encounter, launched by Novagen (and recently re-packaged by Atlantis) was the first game to offer something close to the Battlezone concept, although it substituted flying saucers for tanks and utilised the conventional form of graphics. Atari finally produced the official 8-bit conversion in 1987 and this has since made it over the Atlantic (albeit virtually unannounced) as an XE System ROM. At last you can experience the real thing!

It's the year 1999 and after years of negotiation the world's principal nations have agreed on a formula for lasting global peace. All seems well until a rabble of military crack-pots threaten to upset the balance. They plan to unleash robotised weapons across the globe in a merciless bid to reduce the Earth to a lifeless landscape, and the only hope (as if you hadn't guessed!) is for you to save the world by valiantly destroying the enemy's deadly array of super-tanks, missiles and saucers - it's no Sunday picnic!

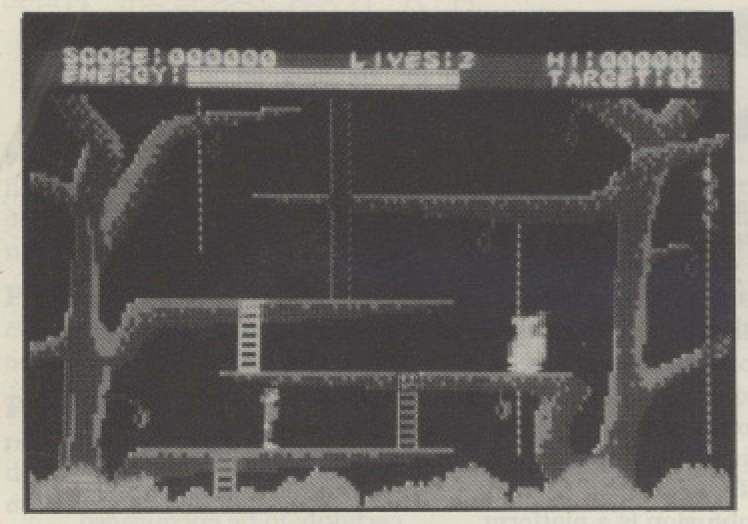
Your view of the proceedings (in vector simulated 3-D) is from the turret of a vintage battle tank. A gunsight is marked in the centre of the screen and above, a status panel displays your score, remaining lives and a scanner. Your objective is to pin-point enemy units using the scanner, line them up in the sights and then blast them into obscurity with a squeeze of the joystick trigger. Accuracy is the important factor since you can't fire again until the current shell has landed. Your tank is highly manoeuverable and can turn through 360 degrees with ease - this is rather fortunate as the battlefield is littered with pyramids, cuboids and other objects which serve both to hinder your progress and as useful shields against return enemy fire.

There can be no doubt that the colourfully shaded backdrops of Encounter are infinitely more appealing than the drab outlines in Battlezone. The use of standard graphics modes and default text styles gives the latter program a rather amateurish feel by modern-day standards, but I can't deny that the underlying game is *EXCEEDINGLY* and truly addictive!

Title:	**BATTLEZONE**
Publisher:	**Atari Corp.**
Price:	**£14.95 ROM**
Players:	**1**
Loading:	**N/A**

Reviewed by Paul Rixon

MONKEY MAGIC



Attention! 'The all powerful Buddah commands you, the Monkey King - great sage of all heaven - to travel to India and collect the holy scriptures'. It may sound like the introduction to a Sunday-afternoon television movie but, in fact, this is the plot of MONKEY MAGIC, a re-released arcade-style oldie from Alternative Software!

The game is divided into two scenarios, although curiously neither seem to involve the religious scriptures mentioned in the original story! Following a musically accompanied credits page, the journey begins in the Sacred Peach Gardens where the Monkey King (who, incidentally, doesn't look anything like a monkey!) must pick the magic fruits from a gigantic peach tree. This forms the basis for a straightforward 'ladders and levels' screen in which the graphics are detailed, colourful and nicely animated. As you might expect, the tree is guarded by demons, snakes and other mystical inhabitants so your character must be careful to avoid contact as he leaps and climbs across a variety of branches, ladders and ropes. It's easy to lose a life since the jumps demand pixel-perfect accuracy, but eventually you will learn the necessary tactics taking you on to the next stage of the mission.

The second part of Monkey Magic is set high above the clouds where - all told - you engage in battle with the evil creatures of the Universe. The screen view switches to a largely blank, horizontally scrolling display and your aim is to shoot down waves of oncoming winged adversaries whilst avoiding collision. To succeed you must eliminate a specified number of the nasties, but the main difficulty is that the joystick controls are so painfully unresponsive that your character can drift helplessly into their path. This problem makes the whole thing seems a pretty pointless exercise and even if your luck does hold out long enough to complete this task, the game simply returns you to the original platform screen for another round of the same.

MONKEY MAGIC swings off on a promising note with its atmospheric music, neat graphics and popular platform theme, but from here on things move rapidly from promising to decidedly mediocre. Had the author developed his initial idea into a full-blown arcade adventure it might have been a major success story, but in its present state the game appears unfinished and, as such, its lasting appeal is probably non-existent.

Title:	**MONKEY MAGIC**
Publisher:	**Alternative Software**
Price:	**£1.99 cassette**
Players:	**1**
Loading:	**13'12"**

Reviewed by Paul Rixon

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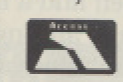
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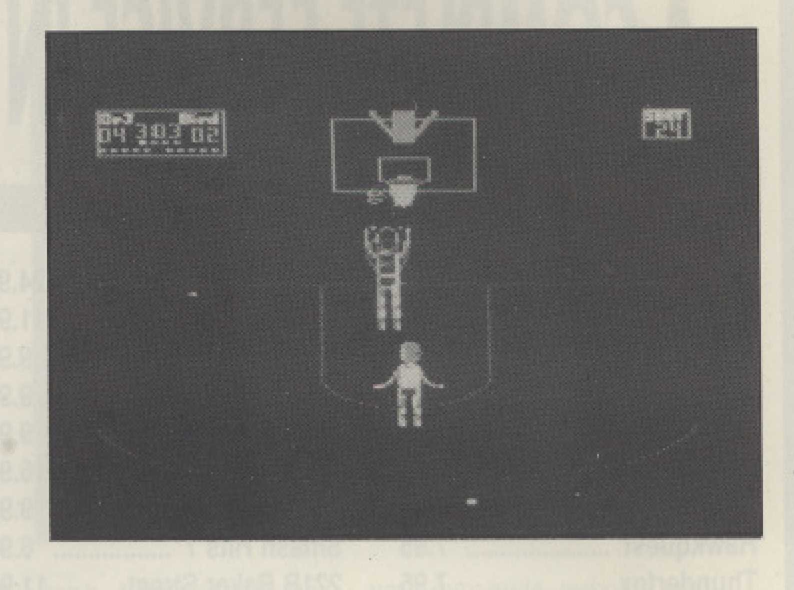
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ONE-ON-ONE BASKETBALL



This game was published in the States by Electronic Arts over seven years ago and imported to Britain about two years later. Its subsequent appearance on cartridge is a welcome aspect of Atari's recent efforts to promote their XE Games System Console, by re-releasing a series of hits from the past decade.

ONE-ON-ONE BASKETBALL is a sports simulation involving, as its title suggests, two players in a head-to-head battle on the basketball court. You can challenge the computer or a human opponent, and in both cases the participants assume the roles of Larry Bird and Julius "Dr. J" Erving - two real-life American basketball stars who are said to have assisted the game's development. Before you start, you must choose a difficulty setting ranging from 'Park and Rec to 'Pro' - this determines how easily you are able to carry out shots and blocking moves. On higher levels the referee makes a regular appearance to penalise any player who isn't sticking to the rules! Other options allow you to select a timed game over two to eight minute quarters or to play to a specified score, and you can opt to have either the winner or loser receive the ball after a successful basket. The smart packaging is complemented by a glossy instruction sheet explaining all the features, tactics and illegal moves in detail.

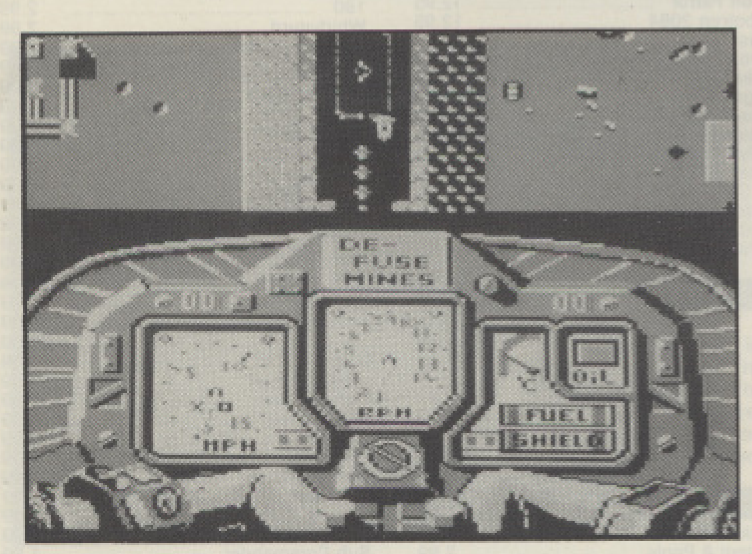
The basketball court - or one end of it - is represented by simple line drawn graphics on a black background but the players themselves are very well designed and carry out dribbles, blocks, jumps and spins with excellent animation. If the frenetic action tires out your computerised player, indicated by a fatigue bar at the foot of the screen, you can call a 'time-out' to recuperate. There are humorous touches too - a particularly ferocious shot can shatter the backboard, prompting the arrival of a cleaner to sweep up the pieces! The joystick commands take some getting used to but once you're accustomed to the moves, the controls are pleasantly responsive.

Although not a 'true' basketball simulation, One-on-One is streets ahead of the only real alternative - the aptly(!) named Basketball - which Atari themselves released in the good ol' days of the 400/800 series. It's fun, addictive and above all, refreshingly different from the usual run-of-the-mill arcade games.

Title:	**ONE-ON-ONE BASKETBALL**
Publisher:	**Atari Corp.**
Price:	**£14.95 ROM**
Players:	**1/2**
Loading:	**N/A**

Reviewed by Paul Rixon

RED MAX



No, this isn't a political adjustment of Broderbund's classic World War shoot 'em up! RED MAX, unlike Blue Max, is actually a space-age motorcycle and Codemasters invite you to use it in another opportunity to save mankind from the evil intentions of those unrelenting aliens! What else?!

It had to happen eventually ... the Sun becomes a Supernova and, to escape, the survivors colonise the moon, construct anti-gravity orbs and catapult it into a new part of the Universe. The plan works well - that is, until renegade Death Lords decide to sabotage the power plants and scatter fusion mines over the land, as the people sleep helplessly in hibernation. Only one person can possibly save the fate of the entire human race, and that person is ... well, you don't really need reminding do you?! The dangerous mission ahead of you comprises three major objectives. First you must de-activate 27 mines by locating them with your super-bike, then find a lift to take you down to an Engineering Level where eight back-up cooling systems and four power plants must be dealt with. Finally, you're required to descend into a hibernation complex in which nine crew members are awaiting rescue.

The top third of the screen provides you with a birds-eye view of the lunar landscape, and the tiny Red Max motorbike. The window scrolls in the direction of the joystick control as you manoeuvre the bike across the cratered ground, avoiding barriers, walls, laser gates and buildings. Riding through switches disables the lasers temporarily so you are able to reach the objects beyond. Underneath, the enormous dashboard of the Red Max is equipped with dials and indicators for speed, fuel, revs, shield strength, temperature and oil statistics. You'll need to keep an eye on the fuel gauge and collect additional supplies when required, but otherwise the dash is largely redundant and, although it clearly adds a cosmetic sparkle to the game, a larger playfield would have been preferable!

David Whittaker has proved, once again, that Rob Hubbard isn't the only music maestro in the computing world and James Wilson's graphics are of an equally praiseworthy standard. The quality of this game is unfortunately reflected in the excessive loading time but, if you're looking for a game that will keep you occupied for a long time to come, your patience will be suitably rewarded.

Title:	**RED MAX**
Publisher:	**Codemasters**
Price:	**£2.99 cassette**
Players:	**1**
Loading:	**21'30"**

Reviewed by Paul Rixon

contact ... contact ... contact ... contact

FOR SALE

65XE: 65XE, XC12 datacorder boxed in mint condition, a year old, dust cover, joystick. Over £100 of software, issues of Page 6 and TV. Just £85. Must be sold, buyer must collect. Phone 0823 252276

XE CONSOLE: For sale, £80 worth of software, light gun, Bughunt, leads, manuals in good shape, computer in good shape, two great joysticks. Buyer collects, £130. Contact 071 241 5699. Ajmal Ali.

ATARI USER MAGS: Atari User (Database) May 1985 - Nov 1988 (Nov 1986 missing). £15 or any reasonable offer, buyer collects. Tel. 051 648 4926. Merseyside.

800XL: Fitted with Rombo XL 256k memory £80, 2nd Book of Machine Language £10, Machine Language for Beginners £10, 2&3 Books of Atari, £15, Atari Collection Vol.2, software from £2. Tel 0203 311670 evenings

XE SYSTEM: 65XE, XF551, Star LC10 B/W printer, ICD and XETEC printer interfaces, MAC65, SpartaDos X, MS Basic 2, Mini Office II, 50+ PD disks, £200 o.n.o. Phone Jim on 03552 35922 (weekends)

XE SYSTEM: 130XE (3 months old) with disk drive, Happy chip installed + operating software, disks, manuals with £250 disk, ROM, tape games, utilities and books, magazines. Excellent complete system (cost £450+). Phone 0743 249094, ask for Mike

XL SYSTEM: 800XL (Ultimon + 80 column) installed, disk drive with US Doubler fitted plus 100+ games, utilities with books, magazines, dust covers includes Microsoft Basic, Assemblers, Artist software, K-Dos, Teletari, U-Cational utilities, adventures, arcade, word processor and extras. Details on 0743 249094. All immaculate for £225.

GAMES, BOOKS & MAGS: 100+ ANTIC, ANALOG, Monitor mags 75p each. Tech. Ref. Notes, De Re Atari £10 each, 130XE coding, Sound & Graphics, Watson's Notes, £5 each. Original boxed rare disk games including Sky Rescue, Twerps, Drol, Choplifter, A.E. Necromancer, Lode Runner, Wizard of Wor, Mouskattack, Bug Off, S.A.M., Hard Hat Mack + 57 more! All £5 each. Lots of other disks, tape games (all original), cheap. Full details on 0743 249094

XL SYSTEM: 800XL, XC12 data recorder brand new, £100 worth of games with boxes in perfect condition, £150. Tel. Philip Jenkyn (0202) 885048

XL SYSTEM: 800XL, 1050 disk drive, 1010 deck, 1020 printer/ plotter, Touch Tablet & Atari Artist, Centronics Interface, Taritalk + various software inc. Atariwriter, Mini Office, Microsoft Basic and others, £260 no splits. Phone (before 8am or after 7 pm) Brussels (int)-322-7369640 (being in Belgium does not make it easy but there must be solutions!)

MAGAZINES: Page 6 Issues 7 to 24, Atari User Vol.1 No.1 to No. 12, Vol. 2 No. 1 to No. 9. Also copy of Your Atari Computer. All in excellent condition. £10 for all the mags, £5 for the book plus p&p. Tel. 0772 313988. R. Kershaw

MAGS ETC.: Atari User mags 28, 48 SIMMS 256k plus holders, 100 RAMS 256k plus sockets. All good. Offers. Tel. 0903 815240

800 SYSTEM: 800 16k computer £80, 410 tape recorder £35, 2 joysticks £10, Inside Atari Basic £5, Atari Basic + 55 programs £7, Basic Programming, Third Edition £10, Basic Ref. Manual £10, 3 old Atari Users £1.50, 1 PAGE 6, 50p, 3 New Atari Users £5.25, about £100 worth of software. Telephone (021) 429 4370. Kunal Nandi, 322 Lordswood Road, Harborne, Birmingham B17 8AN

800 SYSTEM: Atari 800 system with 810 disk drive and 1029 printer, cartridges, manuals, programs and books. £100 the lot. Phone (Reading) 0734 340993

800XL SYSTEM: 800XL, 1050 disk drive and data recorder. Offer also includes games on disk and cassette plus Atari User magazines from Vol.1 No. 1 to Atari PAGE 6 Aug/Sept 1990. Price £180. Tel. 061 653 5374 any time

XL SYSTEM: 800XL, 1010 data recorder, one Quickshot 1 joystick plus 80 games and manuals all for £150. Phone (0501) 62752 and ask for Derek Walker after 5pm.

PORTFOLIO: Atari Portfolio pocket size computer together with 2 manuals and interface. £160. Tel. 0375 675757

800XL SYSTEM: 800XL, 410 & 1010 datacorders, cables, PSU's, software, books, joystick and magazines £45 o.n.o. or swap for ST software or Centronics printer. Tel. Martin on (0935) 25974

8-BIT CLEAROUT: Atari User Issues 1-35 complete and PAGE 6 Issues 1 - 43 except Issue 27. Also Commodore Monitor with composite video input suitable for XL and XE machines £30 o.n.o. Phone Dave on Cardiff (0222) 8211629 Monday to Friday (9am to 5pm) or Cardiff (0222) 598440 evenings and weekends

800XL SYSTEM: 800XL, 1050 drive, 1010 cassette with Rambit upgrade and many converted programs. Around 300 games/ utilities, Transdisk IV, Turbo Taskmaster, Transpac, Freezer and more. £200. Tel 0903 815240

MAGAZINES: PAGE 6 numbers 2 to 43: Monitor 1 -21, other Atari mags - 25; £30 o.n.o. Printer: 1029 dot matrix in good condition £30 o.n.o. Tel. 0329 221640

XL SYSTEM: 800XL, XF551 disk drive, 1010 recorder, loads of software on tape/disk, blank disks, dust covers, joysticks, PAGE 6, Atari User, New Atari User mags - £200. Tel. 061 429 8828 after 8pm.

8-BIT BARGAINS: 1020 printer/ plotter £20, Touch Tablet £20, several books and numerous software titles on disk and cassette. Phone 0753 652064 after 4pm (Slough area)

BARGAIN BOOKS: 101 Programming Tips & Tricks book + original accompanying cassette - £3; Compute!'s First Book of Atari - £5; Atari 600XL Program Book - £3 or £10 for all three (inc. P&P). Write to Paul, 17, Spring Road, Clifton, Shefford, Beds SG17 5RE

XL SYSTEM: 800XL, 1050 disk drive in perfect condition with all manuals and original packaging. Over 40 classic games on disk inc. Boulderdash, Leaderboard, Gauntlet, Draconus, Eidilon and many, many more. Must go in bundle - £170. Tel. 0642 7810342 (Chas)

800XL SYSTEM: 800XL with 1050 disk drive, datacorder - £130; Printer interface - £20; £300 worth of software for £130 (or split, list on request). Atari User magazine (2 issues missing) - £50; Mapping The Atari (Revised) - £10; 130XE Handbook - £5. Phone 0382 454475

XL/XE SYSTEMS: 800XL, XF551 with over £250 worth of software inc. Alternate Reality, Infiltrator, Mydos 2.5, Transdisk IV etc., joystick, XC12 recorder, Atari User mags. Worth over £400, sell for £250 o.n.o. 65XE, XC12, software inc. Draconus, Hawkquest, Star Wars etc. joystick, mags - £115 o.n.o.. Both systems include ROMs, leads, manuals, books. Buy both systems for £325. Phone (0669) 40269 - (could be 0668 40268 can't read the guys writing!) evenings. Buyer collects or pays postage.

65XE SYSTEM: 65XE, XC12 tape recorder, XF551 disk drive, £300 worth of tapes, few ROMs and 100's disks, some blanks, some PD plus mags. £300 for the lot, no splits. Buyer collects. Phone 0602 582788. Nottingham.

BOOKS ETC.: For sale - 9 disks inc. Arkanoid, Pawn, Fighter Pilot from £2; Books inc. Mapping The Atari, Machine Language for Beginners, Printer Interface and Computer Eyes video digitiser. Open to offers. Free postage. Phone 0602 400768 after 6pm.

XL SYSTEM: 800XL + 1050 drive, boxed, little used, with manuals and original disks Solo Flight, War in Russia, Pole Position, Visicalc, Chess, Darts, Invaders and others, £20 Basic textbook, mags. £120. Phone 0625 861877. Near Macclesfield.

YO!!: Atari 130XE, 1050 disk drive, Philips colour monitor for sale in North Dublin area (Ireland). Package includes joysticks, magazines, loadsagames, original boxes. Phone (01) 474366 between 5pm - 6pm weekdays ONLY!

XL SYSTEM: 800XL, 1010 tape deck, all leads, 3 joysticks, 109 tapes all boxed, 2 cartridges: K-razy Antics and Designers Pencil. £170 o.n.o. Tel. 0582 794604 or write to 8, Downedge, Redbourn, Herts AL3 7JP

130XE: Atari 130XE computer, 1050 disk drive plus many disks inc. games and utilities. £270. Tel. 01049/511/563151

LIGHT GUN: Includes Bug Hunt cartridge also Flight Simulator II all for £23 or swap for XC12 cassette recorder. Phone Richard on (0264) 791238

XL SYSTEM: 800XL, 1050 disk drive, XC12 tape unit, ICD printer interface, lots of software, mags etc., all leads, PSU's and manuals. £200 o.n.o. write to Simon Bodger, 12, Haresfoot Close, Funtington, Chichester, W. Sussex PO18 9LP. Possibly split, send SAE for full details.

ST BARGAINS: Fast Basic ROM cartridge, cost £70 - accept £40. Steinberg Pro12 sequencer, £40. Silver Atari Holdall, eighteen games, originals, boxed with manuals, all at £5 each! Computing and Graphics books, magazines. Details on 0242 510434

DISK DRIVE: 1050 disk drive and 10 games inc. Solo Flight, Encounter etc. plus 30 blank disks - £70 o.n.o. Atariwriter Plus, Microsoft Basic, Turbo Basic, 3D Animator, Action (ROM and book), 747 Simulator (ROM), books (Mapping The Atari, Graphics), any offer? Tel. 071 730 5137 after 7 pm.

FREE ST!: Free 520STFM with 512k single sided drive when you buy £200 worth of software for £150. Contact Mr. M. Beseer, 57 Chestnut Crescent, March, Cambs PE15 9TD. Tel. 0354 56086 after 5 pm and ask for Michael. Buyer collects or pays postage.

FLIGHT SIMULATOR: XE system Flight Simulator II manuals and ROM cartridge. Offers please. Michael Baines. Tel. 0293 883872

XL SYSTEM: 800XL, 1010 date recorder, joystick, all leads and manuals. Over 50 games (cass.), 3 years of Atari User mags. Everything V.G.C. only £100 (buyer must collect). Phone 0625 575487 (Manchester area)

WANTED

LISTINGS: Please could anyone send me a photocopy of the listings for Smartsheet (Issue 22) and Great Britain Ltd. (Issue 27). Also Designers Pencil ROM cartridge for sale, cost £14.95, accept £7.00. A. Marsh, 43 Crawford Green, Shorncliffe, Folkestone, Kent

DISK DRIVE: 1050 for 800XL in good working order with manuals. Will pay up to £50. Write to David Rathed, 22 Nevett Street, Preston, Lancashire PR1 4RB

MAGS: Analog Nos. 1, 2, 5, 8, 9, 59-63, 65-67, 69, ANTIC Vol 1 Nos 1-3: Vol. 3 Nos. 6-8,10, 11: Vol 6 Nos 8, 10-12: Vol. 7 Nos 1-5, 7-9, 11, 12: Vol 8 Nos. 6-12. All wanted. Please ring Kevin on 0224 323335

STATIONFALL: Infocom adventure wanted (for the 8-bit Atari). Will buy or exchange for another adventure. Tel. 0502 566026

8-BIT REPLACEMENT: I require the full PCB (keyboard switches included) of the 800XL. I will pay fair price. Send to or phone Jared Daly, Parkmore, Doorus, Kinvara, Co. Galway, Ireland. Phone (091) 37476

R-TYPE: For the STE (the version that was supplied with the STE POWERPACK) as the original does not run. Phone 0602 400768 after 6pm

DISK DRIVE: 1050 disk drive wanted with lead. Please ring with details after 6pm. Will collect in radius of up to 50 miles. John Allman. Phone 0707 326123

DISK DRIVE: Disabled 130XE user requires 1050 disk drive for education program. If anyone can help I can pay around £60. Can arrange collection if within reasonable distance. Phone Ed. on 081 531 4977 (London E17)

1027 ROLLERS: Does anyone have, or know where to get ink rollers for the 1027 printer? Write to Miss D. Heyes 13 Verna Street, Ramsbottom, Nr. Bury, Lancs BL0 9HZ

MORE OVERLEAF

FOR SALE ... WANTED ... PEN PALS ... ADVICE ... HELP ...

contact extra ... contact extra ...

PENPALS/HELP

SUSSEX USERS: I would like to hear from any 8-bit users in the Sussex/Surrey/Kent area. I have a 65XE, XF551 drive, XC12 tape and want to set up a users network in this area. Write to Daran Beauchamp, 22, Byron Grove, East Grinstead, West Sussex, RH19 1SG

CONTACTS WANTED: New Atari owner with 800XL, 1050 and 1029 printer interested in all areas of software, also interested in DTP and computer projects. Please contact Jim Delhaney, 21 Fairview Road, Carlighow, Batley, West Yorks.

TURKISH CONTACT: My name is Ramazan. I live in Turkey. I have an 800XL, 1050 disk drive, Phonemark tape unit. Contact wanted with any 8-bit users. Tamazan Sezer, Sahrayicedid Halks. Aksit ap No. 15 D:10, Erenkoy (81080), Istanbul, Turkey

USER GROUP: Wanted, a partner to create a user group (mail), must be aged 14 - 15 and must own a printer. Anyone interested write to Brian Crook, 215 Warrington Road, Goose Green, Wigan, Lancs, WN3 6PA (Preferably Lancashire area)-

8-BIT PENPALS WANTED: I have an 800XL and 1050 disk drive and would like to hear from anyone interested in swapping hints, tips, ideas etc. Write to Mick Hutton, 83, Westbourne Road, Ipswich Suffolk, IP1 5EJ

PRINTER HELP: I have a 130XE, XF551 disk drive and a General Electric printer. I have a lot of programs for the 1029, Epson etc. but am asking for programs for drawing on the G.E. printer. I will exchange programs with anyone who writes. G. Lukassen, Industrieweg 63, 7061 AN Terborg, Netherlands. Tel. 08350 28755

HI PENPALS: My name is Glen Draper and I have a 130XE and XC12 tape unit. I would be very pleased if anybody around the world or Britain would like to swap hints, tips etc. with any other 130XE, 65XE or 800XL user. All letters answered. Write to Glen Draper, 46 Stafford Avenue, New Balderton, Newark, Notts NG24 3EG

65XE USER: I have a 65XE and would like to swap hints, tips and games with anyone who gets in contact with me. I have a large selection of adventure games. All letters answered. Write to Darren Hilton, 87 Crescent Road, Woolwich, London SE18 7AH

1029 HELP: I have recently bought a 1029 printer and I require information on using this machine with commercial software, for example Printshop. Any help would be appreciated. Contact James Delhaney, 21 Fairview Road, Batley, West Yorks WF17 8EH

STOP!!!: Don't throw away that faulty Atari hardware. Sell it to me and help keep the 8-bit going. Telephone (0734) 833006 or write to Mike, 98 Hunters Hill, Burghfield Common, Reading, Berks RG7 3HN

1029 PRINTER: Has anyone got a spare set of the original instruction pack (not photocopy) for the Atari 1029 printer? Reasonable price paid. Ring Harry on 0787 473136

1027 HELP: If you have a 1027 printer which has packed up I may be able to repair it for you. Worth a try! Alan Gildersleve. Tel. 081 693 4134 (1pm to 9.30pm)

XL/XE PENPALS: Calling all 8-bit users. I would like someone to swap hints and tips with. Also I have a number of tape games for sale at bargain prices. All letters answered. Write to Anthony Churcher-Brown, 9a Hawthorn Road, Denmead, Hants PO7 6LJ

MIKE ROWE: Desperately seeking Mike Rowe (aka M.A.O.). I used to live opposite you in Heaton Mersey. If you remember me (Paul) then please contact me on (061) 485 2535

HELP: I have just got a 1050 disk drive and various disks but unfortunately no instructions! Could anyone please send me any tips for Alternate Reality, The Dungeon. Ken Sturgess, Kollen, 109 Howard Road, Sompting, West Sussex

ADVENTURELINE: For 8-bit adventures. I am hoping to form an adventure line where adventurers help each other through the adventureline newsletter. This will contain hints, tips, swaps, news and views. For details write to: Tony Johnson, 1 Co-operative Tce, Burnopfield, Newcastle-Upon-Tyne NE16 6NH

C'MON GAMESTERS!: I'm compiling a top ten of games in each of the following categories. let me know your top three for each one and I'll let you know the National result. 1. All Time Best 2. All Time Worst 3. Most Addictive 4. Most Frustrating 5. Best Shoot em Up 6. Worst Sports Sim. Contact Richard, 2, Cottingley Heights, cottingley, Leeds, LS11 0JL

PENPALS: I would like to hear from anybody from the Americas who owns an Atari 65XE who would like to swap hints, tips etc. with me. I have a cassette player and two printers as well as a 1050 disk drive. All letters answered. Marie Turnbull, 40 St. Joan Close, Langley Green, Crawley, West Sussex RH11 7SW, England

CONTACT is FREE of charge and may be used by any genuine Atari enthusiast for contacting other owners. Any notice may be included except those offering software only for sale or exchange or those offering items for sale commercially. The Editor reserves the right to omit any notice received at his discretion.
Send your CONTACT notice to CONTACT, PAGE 6, P.O. Box 54, Stafford, ST16 1DR. Please write your notice on a separate sheet of paper, not as part of a letter.

FOR SALE ... WANTED ... PEN PALS ... ADVICE ... HELP ...

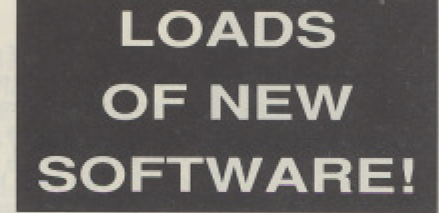
THE ACCESSORY SHOP
ISSUE 47

MORE ATARI SOFTWARE!

Whilst restocking the titles from our last published list we managed to pick up a whole host of extra titles from the depths of Atari's warehouse. Here you will find some of the all time classics and some programs that many of you will not have seen before.

There are good supplies of some titles, whilst others are now becoming collectors items. Several are available only in small quantities and represent the very last time these will be offered - we have purchased all remaining stock of some very rare classic titles. Act now or miss out forever!

As usual these titles are all offered at a fraction of the original price or the current price where items are still available.



Let's Learn!



CASSETTE ONLY

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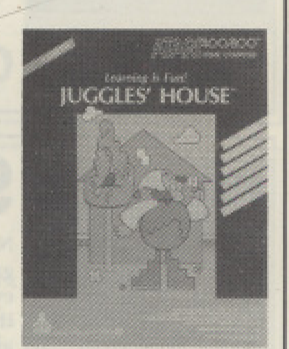
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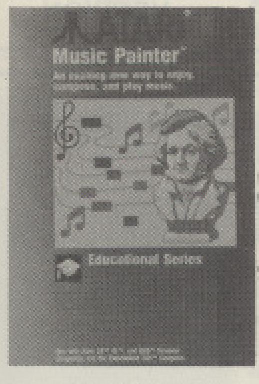
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ROM CARTRIDGE

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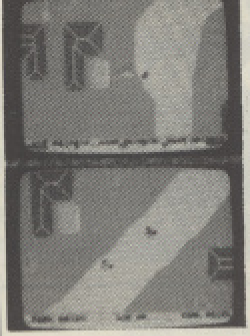


CASSETTE ONLY

Let's Play!

Atari have had some real classic arcade games and originals either written themselves or specially commissioned. Some of these titles have not been available for some time and all are top quality programs to bring you fun and excitement with your Atari

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RALLY SPEEDWAY

A different kind of racing game that gives you an overhead view of your car as it hurtles around one of several tracks. Great skill is required to keep on going as your car careers round bends and skids off the road at high speed. A nice game that requires a deal of skill. This game has not been available for some time but and the cartridges have been now been repackaged for our special offer.

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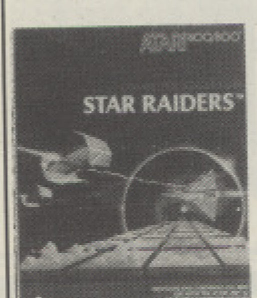


Another of the all-time classic arcade games that has you defending cities from missile attack. Command the defence guns as enemy missiles rain down from space to attack your cities. Later smart missiles and bombers will appear making the action more and more frantic. For one or two players.

Normally £14.95

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ROM CARTRIDGE



STAR RAIDERS

Nothing needs to be said - voted the best computer game of all time and still more playable than almost every game that has followed. Destroy all Zylon ships throughout the galaxy, check long range scans, dock at starbases for refuelling, warp to different sectors and all the time check the galactic charts for Zylon attack. Very few have made it to Commander level. The classic original at a great price. Requires keyboard.

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STAR RAIDERS II



Disk version of this follow up to the greatest computer game. Your mission is to pilot the hottest fighter in the galaxy - the Liberty Star - to destroy the entire Zylon Master Force. Your weapons are: Pulse Lasers, Ion Cannons and Surface Star Bursts. Warp between two systems, protecting friendly bases whilst dropping Star Bursts on the enemy. More great action from where Star Raiders left off.

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DISK VERSION



CAVERNS OF MARS

Winner of one of the first Atari programming competitions, this was one of the first vertical scrollers and remains a much sought after original game. Descend through the caverns avoiding mines and picking up fuel. Highly playable and addictive, only one or two have made it to the bottom of the cavern to discover the secret that awaits them.

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DONKEY KONG



Another of the classic arcade hits in which you guide Mario the carpenter up the ladders and platforms to rescue his sweetheart from the clutches of Donkey Kong. A challenging and addictive game in which you must avoid many obstacles and fight hard to achieve the objective. For one or two players.

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ROM CARTRIDGE



SUPER BREAKOUT

Breakout was the original simple yet totally addictive game and this enhanced version will provide even more addictive fun. Several variations on the basic theme are available for one to four players (up to 8 on the 400/800!). *NOTE that this game requires paddle controllers.*

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Great sports fun either against the computer or another player, singles or doubles. Forehands and backhands, driving approach shots, angled volleys, overhead smashes and tricky lobs - they are all here. You control your position on the court and where you want to hit the ball. The electronic scoreboard dis plays the results. All the action without the sweat!

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ROM CARTRIDGE

PENGO

You've just landed in Antarctica. Your mission is to help PENGO, the penguin, fight killer SNO-BEES on a battlefield of ice blocks. Just as in the arcade game, PENGO must crush or freeze the deadly creatures before they destroy him. The faster he clears them out, the more points you win! An original game that requires a little more thought than the standard blast 'em up. For one or two players.

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MILLIPEDE

Centipede was the original, this is the enhanced and faster version in which the bug avoids the bugs! Creepy crawlies like jumping spiders, buzzing bees, bouncing beetles, mosquitoes, dragonflies, inchworms and earwigs add to the fun. You've got to blast fast to get rid of them. Uses joystick or trackball.

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MOON PATROL

Your beat: Sector Nine, home of the roughest, toughest thugs in the galaxy. You have the finest patrol car on the force, complete with anti-gravity jump buttons and laser bullets, but you'll need more than a hot car in the rough terrain of Sector Nine. Blast UFOs. Leap over landmines. Demolish tanks and jump huge craters and moon rocks - just to survive. Great 3D graphics and good music add to the enjoyment of this addictive arcade conversion.

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American League baseball at it's very best. A highly regarded game - check out the review in Issue 45 'THE best sports simulation on the Atari'. Look over the pitchers shoulder as he throws the ball to the waiting trio of batter, catcher and umpire. In Hard-Ball you can hit, run, steal, blunt and dive, change the fielders and do everything you can do in the real game. For one or two players.

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A version of the classic Blue Max that finds you flying across the desert Indiana Jones style searching for hieroglyphics hidden in the desert sands. You need to survive long enough to destroy the howling Sphinx. The longer you survive and the further you proceed, the more perilous your mission becomes. If you destroy the Sphinx you get to gain the bonus round for even higher points. Four skill levels.

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ARCHON

A chess-based game with the forces of Light and Dark doing battle on each square. Cast spells and missiles to gain squares and eliminate your opponents pieces. Your magic rises and ebbs with the board's luminosity cycle. As the light changes, so does your power. You must race against time and use your strength effectively. A truly original game that is difficult to explain in a short space. One or two players.

Normally £14.95
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ROM CARTRIDGE

MICROSOFT BASIC II

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The easiest to use tool for machine language programming Just plug in and start writing your own Assembly Language. Complete with manual and useable with disk or cassette based systems.

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DISK ONLY

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DISK ONLY

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VOODOO CASTLE

The Count of Monte Cristo reposes in a coffin in his musty castle, awaiting an able assist from you to remove the curse that binds him to non-life. Is he down for the Count for good, or can you help? Gather your rabbit's footand prepare to step through the portal of Voodoo castle! Scott Adams Graphic Adventure #4 is a Moderate level adventure ideal for those who have had a little experience.

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THE COUNT

When's the last time you awoke in an antique brass bed in a dank, desolate castle? If your answer is "never" you've come to the right place! This marvellous Gothic Adventure will escort you into the weirdling world of a certain well-knownTransylvanian count. Scott Adams Graphic Adventure #5 is a Moderate level adventure ideal for those who have had a little experience.

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Original price £19.95
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STRANGE ODYSSEY

At the galaxy's rim, there are rewards aplenty to be harvested from a long-dead alien civilization. Fabulous treasures ... advanced technologies far beyond human ken ... All this and more awaits the brave galactic Adventurer. But will you be able to recover the wealth and return home? Prepare yourself for a Strange Odyssey! Scott Adams Graphic Adventure #6 is a Moderate level adventure.

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VISICALC

The world famous Visicalc spreadsheet available for your Atari. Visicalc will take care of all of your spreadsheet requirements with all the arithmetical functions you could want on a spreadsheet that is 63 columns wide by 254 rows deep. All major spreadsheet functions are supported and the program even allows split viewing windows. Priced at £159.95 when first released!

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TIMEWISE

Why not use your Atari as an electronic diary? Timewise allows you to keep track of all your appointments and important dates on a daily, monthly or yearly basis. Now you can dispense with your diary and let your Atari do the work. If you have a printer Timewise allows you to print out the information in a variety of ways.

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PLANETARIUM

Fun or education? Both really in this fascinating look at the heavens. Over 1200 stars, 88 constellations, the solar system and more than 300 deep-sky objects are depicted in this program that allows you to view the universe. You can make stellar and planetary maps, study eclipses, learn about latitude and longitude and much more.

DISK ONLY
requires unmodified 1050 drive

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PROOFREADER

Users of Atariwriter will be delighted with this, the long lost spelling checker for the Atariwriter cartridge! Proofreader may be loaded alongside Atariwriter to give you instant access to a dictionary of 36,000 words. If that is not enough you can add your own words as you go. Errors are highlighted on screen for correction, unusual words can be saved and you can look up spellings.

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MACRO ASSEMBLER

The Macro Assembler will allow you to create your own machine language games and applications five times faster than with the Assembler Editor cartridge and it can assemble as many as 1600 symbol definitions with no limit on program size. You can duplicate code, optionally assemble code and modularise your program. A Program-Text Editor is included.

DISK ONLY

Normalally £19.95
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EASY PROGRAMMING FOR YOUR ATARI MICRO

This book went out of print 3 years ago and we have been searching for a replacement ever since. We are absolutely delighted to have found more stocks of one of the best beginner's books ever published. Over the past couple of years whenever someone has phoned for a beginners book on programming we have advised then to try and find a second hand copy of this book - now you can buy it once again, brand new! By the end of this book you'll be writing your own programs, including those with full graphics and sound.



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BASIC CARTRIDGE

Why would you want a Basic Cartridge when Basic is already built in to your machine? Well some programs, especially some early public domain programs won't run on the XL/XE but they will if you plug in the old version of Basic. Much more convenient than having to boot in the old Basic from disk and, at this price, worth having just as a backup.

ROM CARTRIDGE

OUR PRICE £3.95

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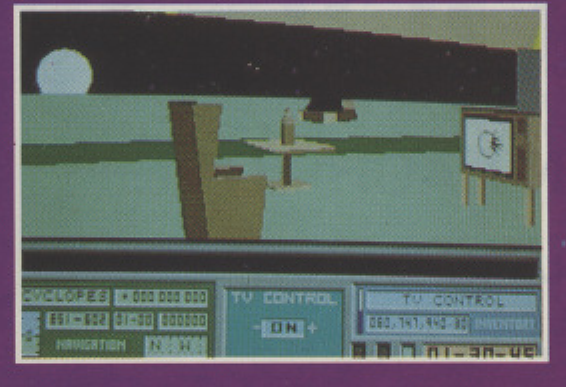
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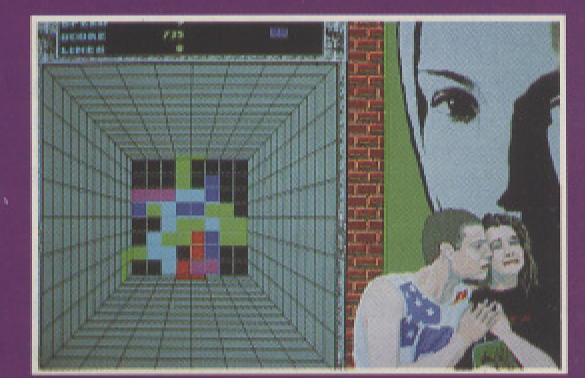
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ST FILE

French company UBISOFT have recently set up a UK office and promise to release some classy games over the coming months. PICK 'N' PILE is an unusual one in which coloured balls fall from the sky and you have to make them disappear by stacking balls and surrounding each column with other stacks. BRAIN BLASTERS is a typical French production in which you 'battle against yourself, or rather battle against the negative side of your spirit'. You accept the invitation of the Great Priest and find yourself on the island of Vardkar where the magician most apt to face the ultimate test is chosen - from there it starts getting complicated! Others promised include B.A.T. which comes complete with a plug in sound board and BACK TO THE GOLDEN AGE reviewed in this issue. On the education front Play and Read have released the next two programs in their 'Learn to Read with Prof' series entitled PROF LOOKS AT WORDS and PROF MAKES SENTENCES. Both expand upon the original and have been developed along established educational guidelines. Elite, having spent a long time re-releasing most of their titles on the budget label Encore, are now set to release some brand new games among which is TOURNAMENT GOLF, which looks to be an excellent golf simulation along the lines of the famous Leaderboard, and WORLD CHAMPIONSHIP SOCCER which Elite claim gives you all the little 'extras' missing from other soccer games. Hot on the heels of their two recent compilations Domark have WHEELS OF FIRE, the 'definitive driving compilation' that includes HARD DRIVIN', CHASE HQ, TURBO OUTRUN and POWER DRIFT - products from Ocean and US Gold as well as Domark's own, this will retail at £29.99. From Imageworks comes CADAVER, a new game by the Bitmap Brothers, an adventure packed with puzzles, traps, adversaries and arcade action in over 70 rooms. If you want your games cheap, check out Electronic Arts new budget titles under their 'Star Performers' banner. These are priced at £9.99 and include such well respected titles as FERRARI FORMULA ONE, HOUND OF SHADOW, POWERDROME and ZANY GOLF. Novagen, having finally released DAMOCLES are not going to wait another four years to follow it up and have already released the DAMOCLES MISSION DISK 1 with a second to follow in January. Each offers another five missions for £9.99. Back to Domark, look out for S.T.U.N. RUNNER, a 900 mile per hour future vehicle that has to race through tunnels to annihilate opposing gangs, and BADLANDS in which you must ride rough shod over other cars in a banger race game with eight different courses. Look out also for HARD DRIVIN' II due out in time for Christmas. Infogrames are the other French company with the Gallic flair and they have a number of enhancements to SIM CITY lined up. These include FUTURE USA in which you get to design your own 21st century American city, FUTURE EUROPE which lets you build the new capital of Europe (not in Milton Keynes, please!) and MOON COLONY set further afield to avoid all the thousands of other users busy setting up cities all over the world! That's not all for you can also get ANCIENT ASIA in which you have a little history to guide you, MEDIAEVAL TIMES which combines a little myth and magic with ruling the land and WILD WEST where you can live out your Western fantasies. Infogrames also have a new 'Detective Adventure' set aboard a spacecraft in which you must save the lives of the crew after a murder attempt, called, appropriately enough, MURDER IN SPACE. Others are METAL MASTERS in which you control a robot as high as a building with a destruction force beyond your imagination, MYSTICAL, an arcade game in which you play a wizard at the end of his studies set to go out into the world and do battle with the many foes that Wizards always seem to find and finally ALCATRAZ an action game which requires you to use stealth to infiltrate a gang and arrest the head of a drug ring. This games uses sound as its basis requiring you to tread carefully for fear of detection.



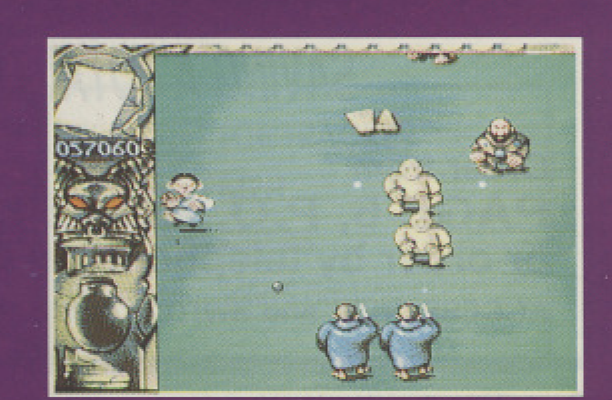
DAMOCLES MISSION DISK - the first of two disks to enhance the original world



WELLTRIS - Infogrames extend the Tetris principal into 3D



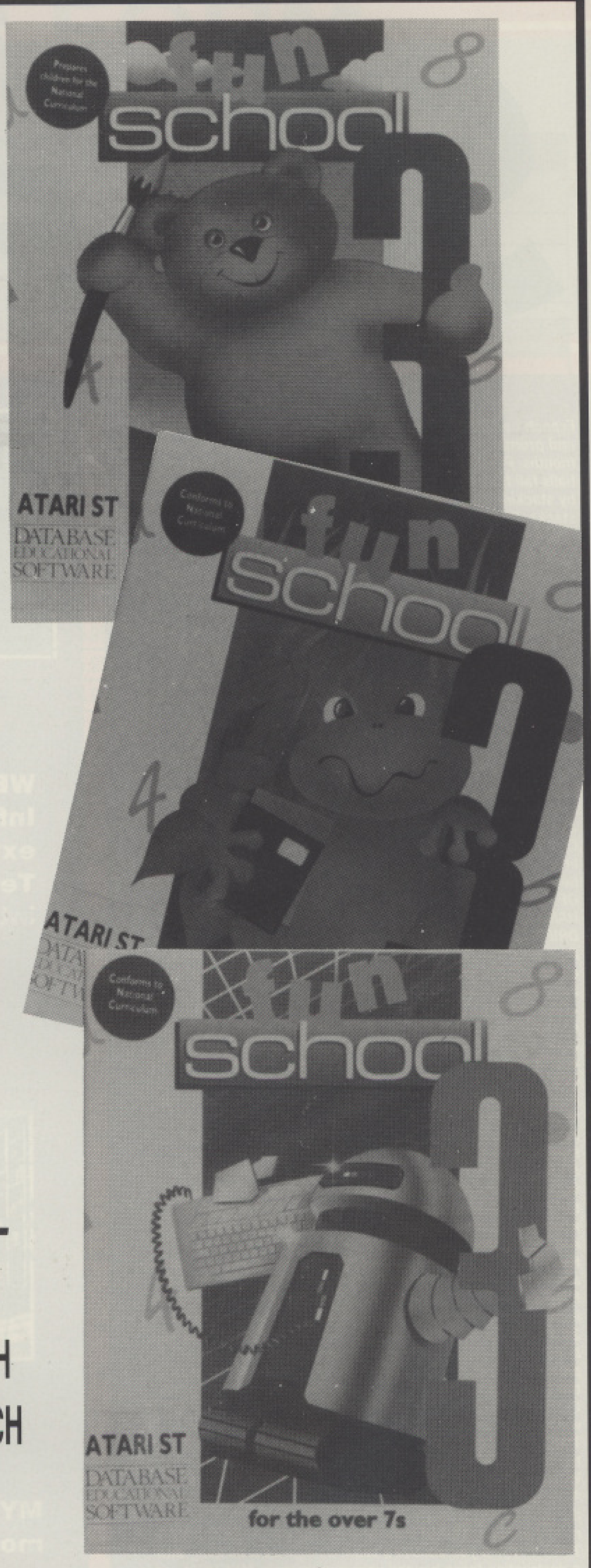
ALCATRAZ - your chance to capture a drug baron in San Francisco



MYSTICAL - more magical arcade action from the team at Infogrames

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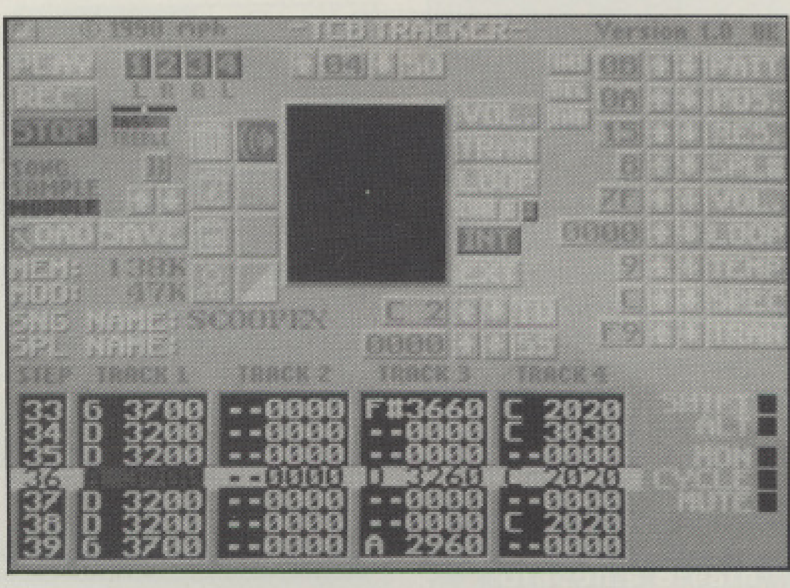
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TCB TRACKER



Want to start making music with your ST but can't afford a MIDI setup? If so, this unusual music product written by Anders "AN Cool" Nilsson of The Care Bears fame could be just what you're looking for. It's basically a four track sequencer which plays digitally sampled sounds, effectively turning your computer into a complete sequencer, synthesiser, and drum machine setup without adding any music hardware! It should interest programmers too, as the music files it creates can be incorporated into your own programs.

The software comes on just one DOUBLE-SIDED disk, which is very naughty of MPH considering the price of the package. It runs on ST and STE machines, and requires at least 512K memory and a colour monitor or TV display.

Samples are like digitally recorded 'sound snapshots' of specific sounds, such as snare drum, bass guitar, saxophone, orchestral hit, etc. Each sample can be replayed over almost a three octave pitch range (in semitone steps), allowing melodies to be constructed from just a single sample. The disk contains many individual samples, including assorted drum, synth, and solo instrumental sounds. If you need more you can create them with Microdeal's Replay cartridge, which you have to buy separately.

You can load up to sixteen different samples into memory at once and play them directly from the ST's keyboard or a separate MIDI keyboard, or sequence them from the program's integral sequencer. The sequencer has four independent monophonic tracks, so it can play up to four notes simultaneously. Each track can be playing a different sample too, making the setup four voice multitimbral in synthesiser terms. Stereo channels and bass and treble tone controls are also supported on the STE.

TCB Tracker is currently advertised as having "full MIDI compatibility", but this is NOT TRUE, at least not in my copy! MIDI is used for input only, and the program will NOT drive separate MIDI instruments on playback. Also, MIDI input is only monophonic, i.e. can only handle one note at any one time, and response is so slow from a MIDI keyboard that the benefit of using one is almost negated!

PATTERNS AND STEPS

Each track is built up from a sequence of "patterns", where a pattern is a series of up to 64 "steps". Each step contains the details needed to play a particular note - basically, which sample to trigger and what pitch to play it at. Note duration is implicitly determined from the sample length and the position of the triggering steps within the pattern.

Each pattern may be recorded in realtime or one step at a time using the ST or MIDI keyboard to input the notes. You can hear each note as it's entered, and you can also switch the software into playback mode at any time to hear what you've recorded so far. You only need to build the unique patterns in a song once as you can reuse them as required, stringing them together in whatever sequence is needed to build a complete track. The principle is similar to that employed in many MIDI sequencers and drum machines.

There are various editing facilities available too. You can cut and paste patterns, sections of a track, or complete tracks within a song or between different songs; combine tracks; replace, delete, transpose, or extract selected samples within a track; stretch a track; and even reverse a track, although this didn't seem to work in the review copy. In addition, any sample can be transposed in pitch anywhere within a one octave range, and during playback you can apply "pitch bend" effects to smoothly vary its pitch up or down. There's also a "looping" facility to increase sample duration, but it seemed to have a totally unpredictable effect on the sound!

BUILD A DRUM MACHINE

Any sample may be triggered from any step on any track, so you can create some fairly complex sounding music. The program is particularly good at creating strongly rhythmic music using percussive sounds. In fact, many of the supplied samples are of different drum sounds, and you can even map a different drum sample onto each key of your ST to build your own drum machine!

One disappointment with TCB Tracker is its sound quality. Its samples use only a 10KHz sampling rate at 8-bit resolution, making the replay quality little better than a pocket transistor radio - even when played through a good quality hi-fi system! However, higher sampling rates significantly increase memory requirements, so 10KHz is probably a reasonable compromise to allow everything to fit into a 520ST.

Other niggles include the inadequate instruction manual; the program's fragility (it bombed too often for my liking); and the author's insistence on using hexadecimal notation on the program's main screen!

I also think it's overpriced, but don't be put off TCB Tracker works surprisingly well, is great fun to use, and provides an "alternative" introduction to music making on your ST. The program is advertised in the mainstream ST mags but if you want to see what it is like before parting with nearly £40 you can get a demo version from the Page 6 Library (disk ST 337).

Title:	**TCB TRACKER**
Publisher:	**MPH**
Price:	**£39.95**
Reviewer:	**John S Davison**

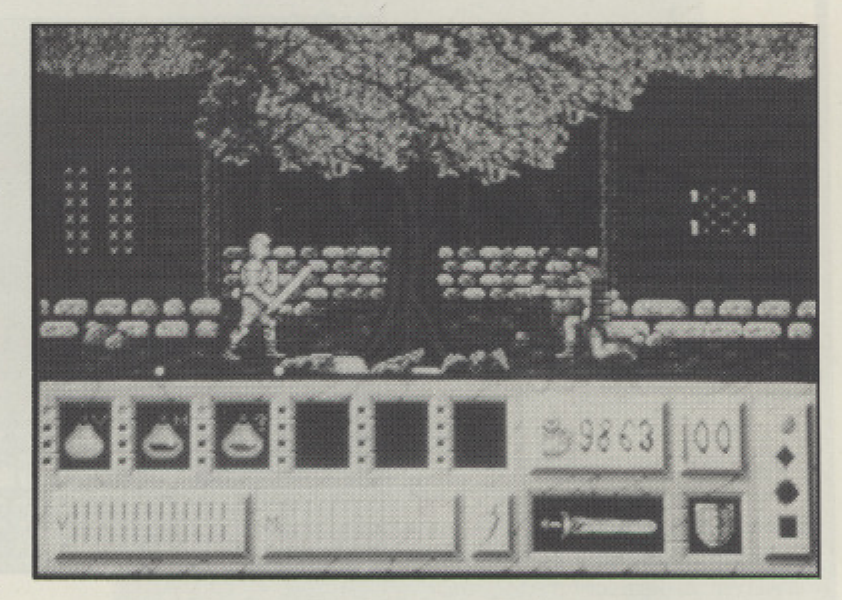
BACK TO THE GOLDEN AGE

Yet another Joystick-Driven, Horizontally Scrolling, Beat-em-up (and Zap-em-up) Arcade Adventure hits the stands! Fortunately this French offering is a little above average and aimed slightly more at those who like some thought in their games as opposed to the usual incessant slaughter!

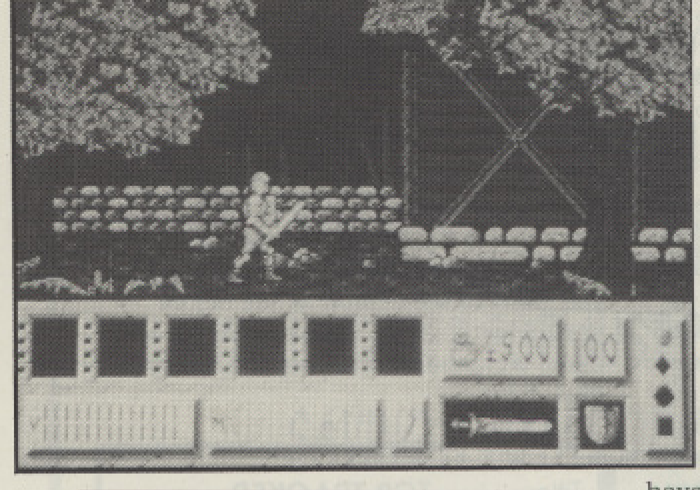
The scrolling is flip-scrolling, i.e. you march off the screen to the left or right to find new territory to explore; many locations also allow you to climb up or down ropes or stairs to new areas or go through doors at the front and back of the screen to enter castles, houses and shops. There are also a few pits which are one way only - you have to find a different route back once you have gone down them.

When you are in the open the minor bad guys keep appearing in droves from both sides of the screen to attack you with clubs, axes, throwing stars, spears, arrows and other instruments of mayhem. The nastier monsters however, like dragons and hordes of fast flying spirits, stay dead once you have defeated them. This gives you time to explore the rooms more fully, searching for levers to manipulate doors and for trying to work out how on earth you open that secret door that you saw closing when you entered the room!

There are lots of goodies lying around for you to pick up by walking over them. The most important are the spell books - I've found nine so far - each with a couple of spells which can help you defeat the monsters, solve the puzzles or just enable you to survive a little longer! The enemy often leaves behind a useful item when killed, keys, gold, potions, bombs, swords, arrows, etc. and there are shops in various parts of the land for you to spend your hard-earned gold on food, potions and weapons. You need to keep both your vitality points and your magic points up if you hope to finish the game.



Thankfully the game allows you to SAVE your position to disk in case you die; you can retry the nastier rooms without having to replay the whole game. I wish more people would put that kind of facility into arcade games! Unfortunately my review copy didn't have this implemented - on the other hand the right shift key on my copy gave me invulnerability! With 194 screens to map (including a few teleports) you need all the help you can get to find the three magical artefacts which you need to complete the game, thus overthrowing the evil priests and making yourself the ruler of this fantasy land.



As long as you have enough magic points left you can throw the spells you have found. Some are fairly obvious from their names, e.g. KILLAR and PARALYS. Some, such as MIRIUS and ANTILICUS, are explained in the ancient books scattered around the place (the books also give sage pieces of advice such as "There are no problems, only solutions!"). You can determine the purpose of these spells by trial and error as well - and because of their locations the chances are you will have worked out what they do before you get to the relevant book! Other spells such as PESOPESE and OPSECAS you will need to work out for yourself! (N.B. I was playing in French - the spell names may be different in English).

You move, turn, jump, duck, shield and fight with the joystick - fighting consists of hacking high or low with a sword, shooting an arrow, or zapping off a spell. The space bar gives you access to your inventory - icons at the bottom of the screen - in order to select spells, drink potions, drop bombs, toggle between low hack and zap, and toggle between sword and bow. If you are prepared to reach a little further then you can use the F keys do do all those things directly. Apart from a slight frustration with the sensitivity of the button, often causing you to cast two spells or fire two arrows when you only meant to use one, the game is very well implemented and great fun to play.

“ great fun to play ”

Finally a note to those with old machines: I couldn't get it to load on my very old 520 and my review copy was on double-sided diskettes - check before buying.

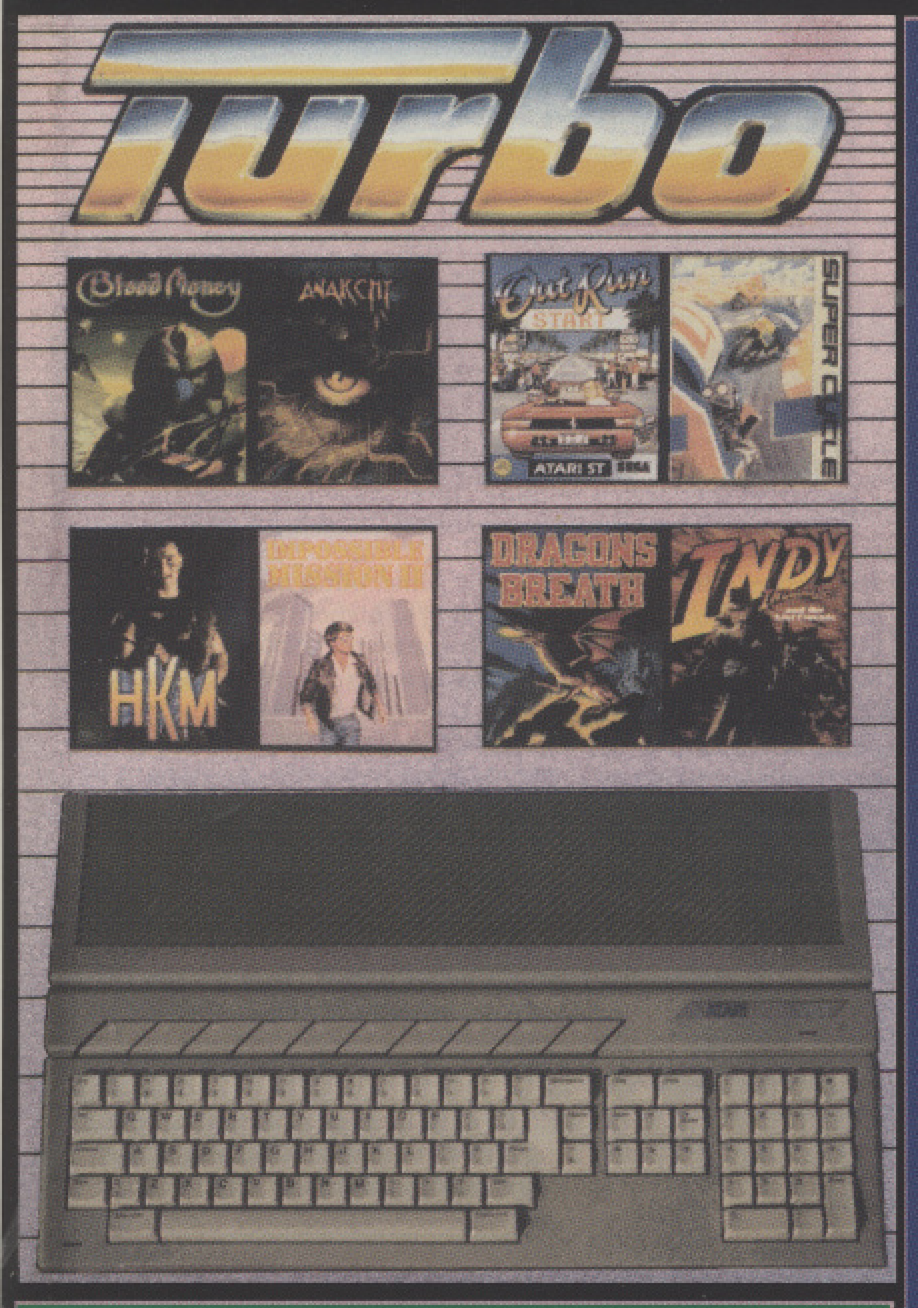
- ***GAMEPLAY*** *- Excellent Fantasy Arcade Adventure with a little thought and mapping as well as a lot of hacking*

- ***GRAPHICS AND SOUND*** *- "Superb Graphics - Fantastic Animations - Perfect Sound Effects" it says in the blurb, and yes, it is pretty good! (Though the "perfect" is probably a slight exaggeration!)*

- ***VERDICT*** *- Great fun - thoroughly recommended*

Title:	**BACK TO THE GOLDEN AGE**
Publisher:	**UbiSoft**
Price:	**£24.99**
Reviewer:	**John Sweeney**

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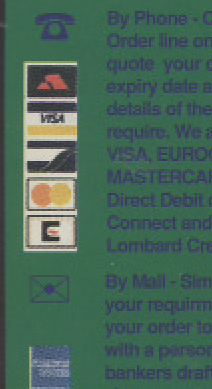
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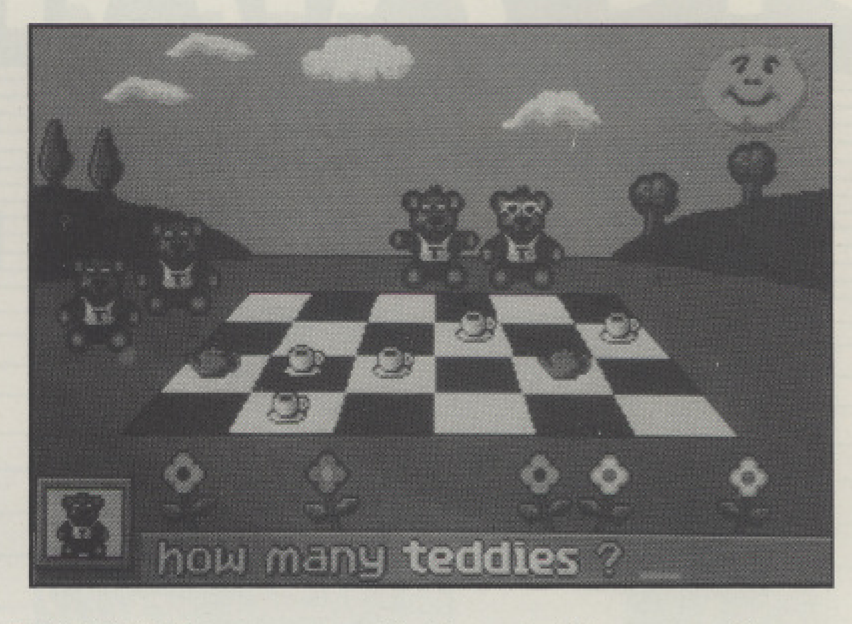
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FUN SCHOOL 3



The three Fun School 2 packages I reviewed in Issue 38 were the best educational software I'd seen for the ST. Now Fun School 3 has arrived, but does it match its illustrious predecessor's high standards? The basic formula is the same as before, but this time the programs conform to the National Curriculum relevant to the age groups covered, these being the under 5's pre-school children, the 5-7's infant age group, and the over 7's junior group. Again there's a different package for each age group, each one featuring an amusing "theme character" to add interest and entertainment to the basic subjects covered.

Each package contains six easy to use programs which can operate at a wide range of difficulty levels. They will adjust to the ability level of the child, but you can manually set them in most cases. Correct answers result in a small audio or visual reward, while incorrect answers may cause the program to prompt with hints and clues. Completion of a level usually triggers an amusing animated sequence, and these are usually well worth seeing! For added flexibility, many of the programs can be customised using your own problems, so you're not just limited to using those provided.

The programs are designed to be educational AND great fun to use. They're also instructive in the use of the computer itself, helping to promote computer literacy from an early age. It's worth remembering that more benefit will be obtained from these programs if an adult sits with the the child, to provide guidance and encouragement as necessary.

SPECIAL OFFER ON FUN SCHOOL 3 SEE PAGE 54

UNDER-FIVES

As in Fun School 2 Teddy is the theme character, but he now looks even more appealing than before. The programs in the package are as follows.

MATCHING - requires the child to match pairs of items by colour and shape, with Teddy giving an encouraging nod or sad shake of the head depending on whether the answer was correct or not.

ACTIONS - my favourite in this package, just on sheer visual appeal alone. The child gets Teddy to perform various animated actions such as sitting, waving, hopping, and listening, by selecting them from a simple menu. Even if the child can't read, he soon learns to associate a selected flashing word with its action, thanks to the clarity of the graphics and excellent animation.

GALLERY - Teddy's been very naughty and removed all the labels from the pictures hanging on the gallery wall. The child has to put them back in place using the Arrow keys and Return key. Although the program doesn't expect much precision in label movement and location, it does seem more suitable for older children.

COUNTING - Teddy is having a picnic with his friends, and the child has to count various items appearing around them. At lower levels it's a simple item counting game, but it becomes quite challenging at higher levels. Each section correctly completed allows Teddy to climb some stairs to reach a feast of honey. The program helps with the counting if an incorrect answer is given, and at higher levels this can happen frequently as the picture becomes quite congested with items!

LETTERS - three Teddies watch the cursor very carefully as the child moves it to match a displayed letter with one from a menu. Getting several right results in one of the Teddies receiving an ice-cream to celebrate! The animation in this is quite delightful.

PAINTING - is a colouring game offering children a choice of colours and an opportunity to use their imagination in creating a farmyard scene. Much hilarity can arise from some of the choices, for instance by selecting pink for grass and green for sky!

FIVE-TO-SEVENS

This package is aimed at the five to seven year olds. It's directed towards Key Stage 1 of the National Curriculum with some elements of Key Stage 2. The theme character here is Freddie the Frog who, like Teddy, appeared in Fun School 2.

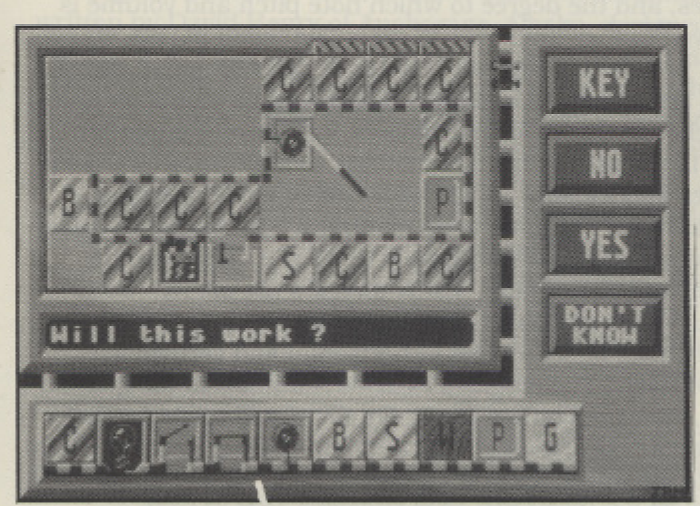
JOURNEY - guide Freddie around roads on a map to visit various places using F-forward, B-backward, L-left and R-right keys. The maps may look simple to start with, but when travelling North to South can YOU easily work out which way to turn at a road junction without turning the map upside down? A great deal of concentration is needed at the higher levels.

COLLECT - move Freddie round his pond to collect the parts needed to solve arithmetic problems. Level 1 is simple addition, and has three numbers, a + sign, and an = sign scattered around the pond. Freddie has to collect them in the

correct order to make up the sum and its correct answer. Level 2 is subtraction. Levels 3 and 4 are addition and subtraction, but include a redundant number. Levels 5 an 6 are similar, but have two redundant numbers and can take some puzzling out!

TOYSHOP - Level 1 involves reading the word at the bottom of the screen, finding the relevant toy on the shelf, and dropping it into a bag. Level 2 includes reading the price and finding the toy. In Level 3 the child has to think about which toys he can buy for a given amount of money, which is developed in levels 4 and 5 to use amounts involving 50p and 5p units. Some of these involve adding together four cash amounts to form the correct total.

ELECTRICITY - this one's really good! It's a demonstration of a simple battery powered electrical circuit that can either light a bulb or ring a bell. The circuit contains switches, conductors and insulators of various kinds and the child has to determine whether the circuit shown will work. He may then change anything in the circuit except the battery, and has to determine whether the circuit will still work. This program is an excellent aid to understanding the basic concepts of electrical circuits and the knowledge gained can easily be applied in simple practical work in the classroom or at home.



Electricity concepts are very quickly learned

FUNTEXT - involves using the computer to search for information. It allows the loading of data on a given topic area and then searching through it to find the answers to questions asked. The program presents a series of questions or a timed challenge, and the child uses menus and an index to page through the information to find the answers. It's possible to create your own Funtext files and questions too, making the program a very flexible learning aid. One slight flaw is that it seems to repeat the same questions rather too frequently.

TIME - helps a child learn to tell the time in whole hours, half hours and quarter hours, with some enchanting animation to reward successful completion of a level.

OVER SEVENS

Theme character this time is Robbie Robot from Fun School 2. The package's six programs are suitable for seven to eleven year olds, and are aimed at Key Stage 2 of the National Curriculum, with some elements of Key Stage 3.

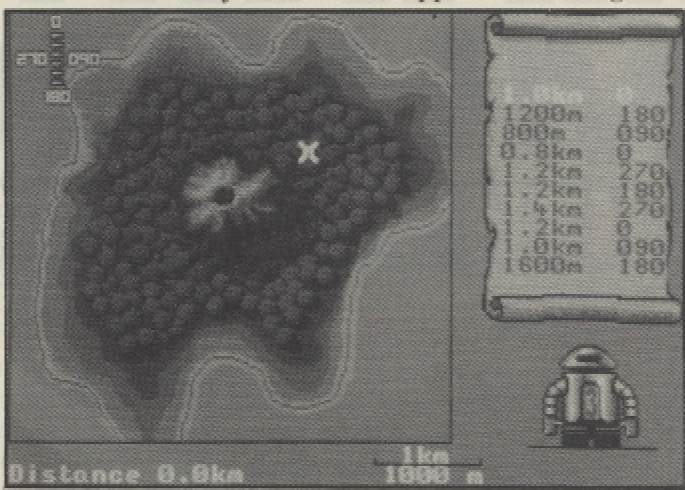
WORDSEARCH - is based on the familiar grid based word search game. Robbie shows a list of words to be used and then hides them in a grid of letters. At Level 1 the words are written vertically and horizontally, Level 2 adds diagonals, and Level 3 can also reverse them! You can customise the program by changing the supplied word lists or create your own.

ROBOT DRAW - is a version of Logo with on-screen turtle graphics (no, not the teenage mutant hero type!). As well as producing colourful pieces of graphic art the child also learns how simple computer programs are constructed. Although the commands are mouse selectable, the child still needs to understand them to be able to fully use the program.

PLANETARY MATHS - an all-action maths game complete with high score table! Correctly answering arithmetic problems makes the starship destroy the alien forcefields - the quicker the answer, the higher the bonus score! There are five levels of addition, subtraction, multiplication and division, and any combination of the four can be used at any time, with each at a different difficulty level if required. The problem moves across the screen, and the child has to key in the correct answer before it runs into the forcefield. Higher levels use problems involving money, and these have almost crossed the screen before the whole problem has appeared, making quick thinking (and keying!) a necessity.

TREASURE HUNT - follow a list of directions using points of the compass or degrees, along with relative distances, to find the treasure at the end of the trail.

DATABASE - a "real" computer application! You can use it to create a file containing your own data, then search, sort, and print it as required. There are several ready-to-use files supplied, including



Fun on Treasure Island

ones with data on Europe, Historical Dates, Shopping, and several relating to numbers and maths. They can also be used as the basis for a test or quiz on the subjects.

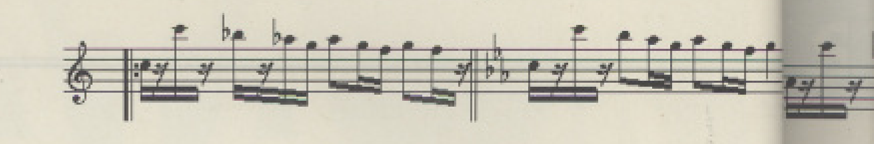
SENTENCES - displays a sentence containing mistakes of various types, including spelling errors, incorrect punctuation, incorrect use of capital letters, and other grammatical or syntactical errors, which the child has to correct. I'm not sure I agree with all of the program's "correct" answers, but perhaps they teach things differently now compared with when I was at school! You can provide your own sentences anyway, if you don't like the ones supplied.

SUMMARY

I thought Fun School 2 was fantastic, but Fun School 3 is even better! The clean, colourful graphics are a joy to behold and the animation is excellent. The authors got the sound right too - a mixture of sampled and internally generated sound that always seems to complement the graphics without becoming obtrusive. The programs are friendly, entertaining, and easily capture the attention and imagination of the children (and parents!) using them. If you're looking for educational programs you can do no better than these - until Fun School 4 arrives, of course!

Title:	**FUN SCHOOL 3**
Publisher:	**Database Software**
Price:	**£24.95 each**
Reviewer:	**John S Davison**





FRACTAL MUSIC

John S Davison's regular guide to all the ways of making music on your favourite computer

One area of music making that doesn't seem to be particularly well served with software is that of composition. OK, there are dozens of MIDI sequencers available that let you quickly record the musical ideas you get, but they don't actually help with the composition process. I was therefore very interested to see a new product which actually creates music, or alternatively transforms existing music into something sounding entirely different. It's called Fractal Music and was written by Chris Sansom and Laurence Glazier of Datamusic Ltd.

Chris is a professional composer with many works to his credit, including a string quartet and a trumpet concerto which have been broadcast on BBC Radio 3. He's also written some 40 pop songs and has been involved in jazz and folk music. Like many modern composers he uses mathematical techniques in his work, but his interest in this area was boosted through his association with Laurence, who introduced him to the concept of fractals and their graphical visualisation via computer. This led him to look for a musical analogy, and after much research he and Laurence eventually developed a suitable algorithm, which now forms the heart of Fractal Music.

The program also incorporates some of the mathematical composition techniques Chris was already using, extending them further than currently possible with manual use. It handles up to sixteen independent musical parts, each recorded on its own track with its own MIDI channel, allowing the generated music to be played on a multitimbral synthesiser. Note - the music can only be played via MIDI, the program does NOT use the ST's sound chip.

On loading Fractal Music you're faced with a complex looking screen. Actually, it's not as bad as it looks as most things on it appear sixteen times over - once for every track. Each track has a set of control parameters, concerned mainly with directing the cyclical mathematical processes used to generate the music.

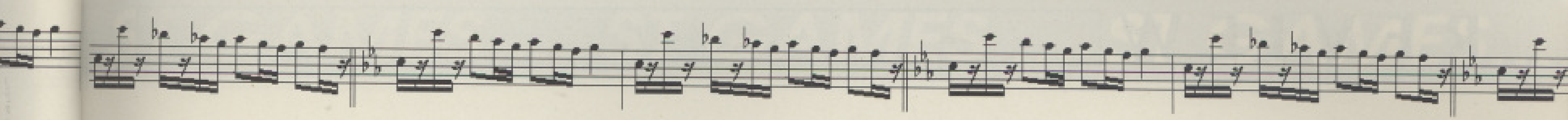
THE FRACTATION PROCESS

This is where the going gets a little heavy! The onscreen parameters control iterations through a three dimensional process using fractal mathematics, which generate time, pitch, and MIDI velocity (note volume) values used to define a musical note. Other parameters determine such things as initial pitch and velocity, acceptable limits for generated values, and the degree to which note pitch and volume is allowed to vary from note to note. The result of this "fractation" process is a stream of notes of different pitch, duration, and volume (i.e. music), which can be stored on one of the chosen tracks for playback or further manipulation.

It's in the area of transformations that a computer system comes into its own, as all but the most basic operations would be very tedious to do manually. The easiest to understand are Invert, which simply turns the music upside down, and Retrograde, which reverses the music - both tricks which composers have used for centuries. Mathematically, they're reflections in horizontal and vertical axes respectively. The program extends reflection to the general case, allowing you set any origin point and angle for the reflection axis. Similarly, rotation processing permits you to rotate the music around a selected point by any chosen angle. The complexities of visualising and using these transformations have been neatly solved by making them mouse driven, and using a graphical display to illustrate what's happening.

Other transformations includes moving a track forwards or backwards with respect to time, and up or down with respect to pitch. You can also stretch or squash a track horizontally or vertically, i.e. to get the music to play over a shorter or longer time period, or to expand or compress the pitch range over which it plays. There's also a quantise facility similar to that found on most sequencers, but this one is far more flexible than most.

Instead of using fractation to generate the music you could instead load a standard MIDIfile containing music created with a separate MIDI sequencer. You can then apply transformations directly to this, as they work on the contents of



any track, regardless of its original source.

Clever processing algorithms are all very well, but what does fractated music actually sound like? Well, to misquote an old saying, "music" is in the ear of the listener - music to one person's ears is just a noise to someone else's. My ears have a very wide musical tolerance and found Fractal Music's output ... ermm ... interesting! I don't think it'll ever make the Charts though! It depends very much on your starting point, the parameters you specify, and the transformations you perform, but generally the music has a modernistic, unstructured, avante-garde feel to it that some people won't like at all. However, the program could conceivably be used to generate musical ideas you could incorporate into any style of music. Don't expect it to do the whole job for you, though.

My main criticism is the program's reliance on MIDIfiles to input your own music data. Not all sequencers (including the one I normally use) support them, so it would be nice to have an alternative method of entering your own data as a starting point. I hope Datamusic add this to the list of planned developments, as its inclusion should give the program wider appeal.

In summary, Fractal Music is a unique software tool, likely to appeal to anyone seriously experimenting with musical composition or computer generated music. It costs £65.00 from Datamusic Ltd., 4 Sharon Court, Alexandra Grove, London N12 8NX. You can phone Chris Sansom on 081-985-5268 for further details. If you want to actually hear what the program can do you can get a demo version of the program from the Page 6 Library.

NEW PD MUSIC SOFTWARE

Les has just added a couple of new music related disks to the Page 6 PD library. Both contain excellent programs written by David Henry of Anchorage, Alaska, designed to considerably enhance the musical repertoire of your ST.

The first disk contains two programs. One is called the Universal Music Player (UMP), and plays music files originally created by various music programs on different makes of computer. These include EZ-Track on the Atari ST, Advanced Music System on the Atari 8-Bit machines, and SIDplayer on the Commodore 64 (aarrgghhh!).

The files have to be ported to an ST first of course, but once they're on an ST disk the program will play them via MIDI! On playback it converts the raw music data into MIDI commands and sends them to an attached MIDI synthesiser.

After telling the program the type of file you want it to handle you can select either a single file or a group of two or more of them to play back one after the other. It's rather like the programmed play feature on a CD player. As an added bonus you can set the program to play your synthesiser in multitimbral mode, using your choice of synth voice on each channel.

The program works surprisingly well. In fact, it's happily playing a very pleasant set of Commodore (sorry, rude word again!) SID files on my PSS-680 synth as I write this. The only criticism I have is that there were only five AMS files, four SID files, and no EZ-Track files on my review copy of the disk. There are thousands of these files in the public domain apparently, so perhaps Les could get a few more ported across for use by this program.

Also on the disk is a demo version of Nickelodeon Five, which seems to be a much uprated commercial version of Universal Music Player. It's much slicker looking; plays the ST's sound chip as well as MIDI instruments; has a large selection of entertaining graphic displays which move in time with the music; and handles ST Music Construction Set and ST Music Studio files as well as those handled by UMP. It's a superb program, but you have to buy the full version for $19.95 to be able to play any more than the five demo files supplied. It's worth having as a demo though.

The second PD disk contains MIDI Music Maker, a shareware program that takes the UMP and Nickelodeon 5 concept-even further! This one handles files from EZ-Track, Music Studio, Music Studio 88, and Music Construction Set on the ST; Advanced Music System I and II, and MIDI Music System (anyone know what this is?) on the Atari 8-Bit machines; SID Player, Enhanced SID Player, and Master Composer on the Commode 64/128; Orchestra-85/90, and Lyra 1/2 on the Tandy Colour Computer; and finally MIDIfiles (Formats 0 and 1) on all computers. What's more, it automatically recognises the type of file on loading, and translates it appropriately for playback via the ST sound chip or MIDI. Amazing!

It has a host of useful features too. For instance, it can analyse and map which voices and degree of polyphony are used on each channel; remap music to different channels; convert any type of file from the list above into MIDIfile Format 0 for transfer to other ST music programs. It also has excellent help facilities and disk based documentation. It doesn't have the flashy presentation of Nickelodeon 5, but functionally it's a terrific program - one that every ST music enthusiast will want to own.

Please note that MIDI Music Maker is a shareware product. If you like it you're asked to send the author $10 to show your appreciation and to encourage him to continue supporting it. It's worth every penny.

The documentation includes a list of possible sources for thousands of music files in various formats to use with this program. They're all in the USA unfortunately, but it may be possible to get hold of some of them for the Page 6 PD Library. I'll investigate this and let you know the outcome in the next issue.

PSS VOICE PATCHES

Remember I harangued all you PSSED and PatchEd users a few issues back about not sending in any PSS voice patches you've created? Well, at last someone's taken up the challenge! Simon Lloyd of Abbots Langley, Herts sent me a disk containing seven new patches he's created with PSSED. He's named them Christmas Organ, Tuneless Bass, HarpsiPiano, Seaside Organ, Glassy Strings, Crystal Bell, and I Like This 3. All but the last are reasonably descriptive of their sound.

Now, if Simon can do it, so can the rest of you. To encourage you to get cracking with your patch editor I'm willing to act as a librarian for all patches sent to me, and what's more I'll make ALL the patches I receive available FREE to anyone who wants them! To get your copy just send me a disk containing at least FIVE new patches you've created in either PatchEd or PSSED format, plus a stamped self addressed envelope so I can return the disk to you with the extra patches on it. Make sure the sae is big enough and strong enough to hold the disk, and don't forget it needs a 22p stamp now! You can reach me care of Page 6 Publishing, P.O. BOX 54, Stafford, ST16 1DR. I look forward to hearing your creations.

With all this new software around there's no room for the usual Snippets news section this time. I guess it'll keep till next issue, so see you then.

NEODESK 3

A great program becomes even greater!

I reviewed NEODESK back in Issue 42 and concluded that I could not recommend it highly enough. Now a new version is available that has all of the original features plus a great deal more. Before we take a look at NEODESK 3 however let me clear up one point from the original review. I stated that the program was not suited to a single drive system since it needed to reload each time but this is not the case. By amending the Set Configuration menu you can have Neodesk memory resident at all times. It takes a little room but is well worthwhile.

So what of the enhancements? They are so many that it is difficult to know where to start. Some are quite minor, yet totally indispensable once you have discovered them, others are major new features. Let's start with the actual desktop itself. The first thing you will notice is that there is an extra icon on the default setup, a clipboard. The clipboard is used for temporary storage of files that you wish to reorganise, for example in transferring files from several folders or floppy disks to other directories. Rather than have several windows open at once, swapping between each, you can now simply open the windows you need, copy or move files to the clipboard, and then open up the destination directory to transfer them all in one go. Such file reorganisation can be achieved by other means but the clipboard saves a lot of time.

The second major difference on the desktop is that you can use the desktop itself for notes that can either be permanent or temporary. Any single line of text can be entered directly on the desktop to act as a reminder or provide information that you often need. If you wish you can now change the entire desktop background by loading in a NEO or DEGAS picture of your choice although you'll have to choose carefully if those messages are still to be legible. An extended feature of this is that you can view any NEO or DEGAS picture directly from the desktop so if you have a collection of pictures you can simply check on each one without the need to run another program. Neodesk also supports viewing of any text file, even a program as a text file, and you can specify an alternate viewer if you wish so that, for example, the DCSHOWIT text viewer could be run automatically by Neodesk every time you elected to view a program.

Let's turn now to the windows where those minor yet so convenient changes have been made. If you check the illustrations you will see a few more icons around the edge of the window. In the bottom left hand corner is a toggle between text and icon display with, next to it, a button to select all items in a window. Minor enhancements that save a great deal of time. At the top of the window below the status bar is a double line which will enable the window to be split into two with each part independently scrollable, ideal if you have a large directory. Top left there is a duplicate window button which saves having to open the window again from the drive icon if you need to access another folder. Another tiny enhancement that could save you hours of despair is a small E that appears on the top right of the status bar if the disk opened contains an executable boot sector. This enables you to check whether a disk may have a virus and, in fact, came to the rescue in preparing this very issue! Brilliant stuff!

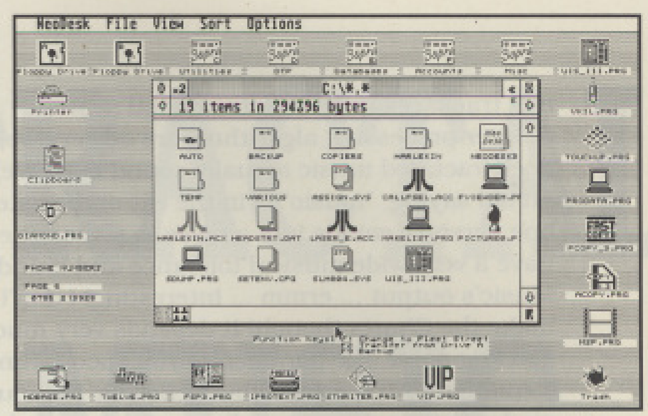
Previously Neodesk allowed you to select templates for open windows so that only files with a chosen extender would appear. This has now been extended so that you can select files with up to six different extenders to appear in the same window and you can even define and save your own extenders.

Other areas where GEM falls down are also addressed such as a routine to print a directory listing or send a form feed to the printer to line it up prior to printing out a text file. There are also search routines that will enable you to find any file in a selected path or drive, invaluable for hard disk users.

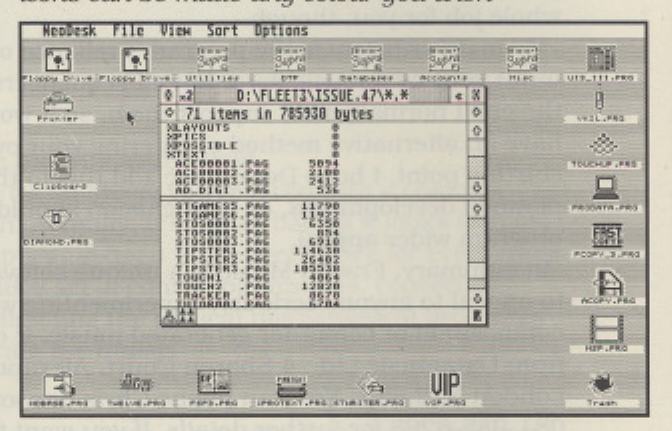
And there are more improvements, so many in fact that there is insufficient space here to describe them all. Those described so far make the program worthwhile, anything else is a bonus. The only criticism I have to make is that I found it impossible to convert my previous NEODESK.INF file using the utility supplied and had to recreate the entire desktop layout from scratch. The manuals could also be better in several respects and the index is atrocious!

If you haven't already bought Neodesk then buy Neodesk 3 now. If you already use it, upgrade. Neodesk 3 is even more indispensable than its predecessor, possibly the most worthwhile program any serious user will ever purchase.

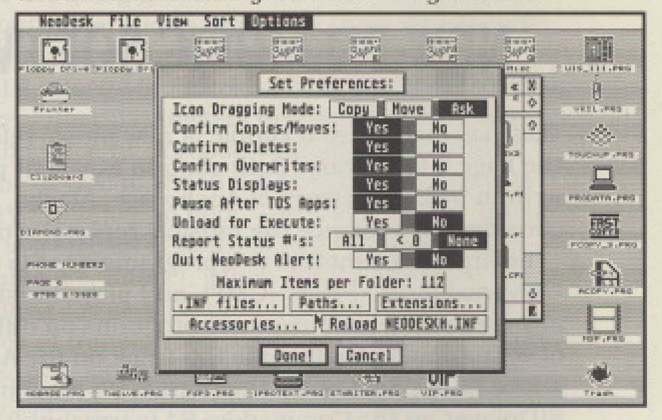
NEODESK 3 is now distributed by Electric distribution and should therefore be easily available. Price is £39.95 for the full package but existing users can upgrade for just £19.95 by returning their original disk and manual to Electric distribution.



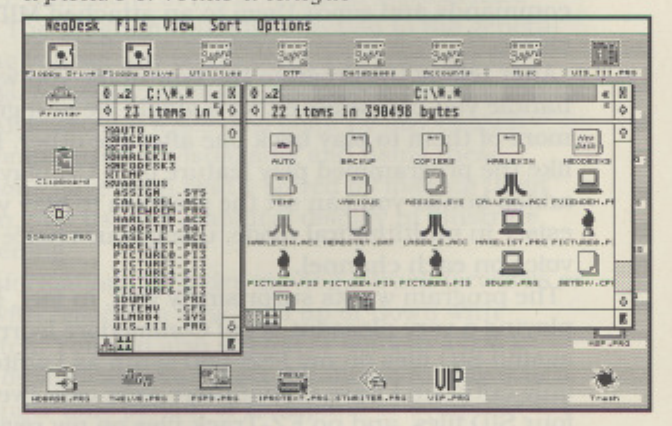
As before all desktop icons can be customised but now the desktop can also be used for notes. Neodesk now also runs in Low Resolution and the icons can be made any colour you wish



A window can be split and each part can be scrolled independently. Notice also the icons at bottom left described in the text and the letter E at top right which can indicate if a virus is on your disk



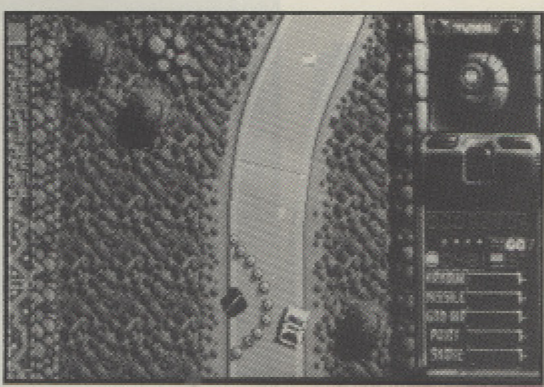
Lots of preferences can be set and Neodesk can stay memory resident. The PATHS button allows alternate programs to be run when Neodesk loads a picture or reads a text file



The duplicate window facility allows the same path to be viewed in both text and icon modes. All of the icons you can see have been customised so that this desktop is totally unique-

reviewed by Les Ellingham

THE SPY WHO LOVED ME



The sound of John Barry rebounds in the ears at the prospect of yet another escapade of 007 on disk. Domark have certainly set out to ensure that the loading titles remind the user of the film or at least the video. A good rendition of the now famous theme accompanies a censors certificate and a video tracking message.

The game seems to follow the tried and trusted Domark method of encapsulating the film into several key scenes and thence making playable scenarios of them. The controls are either keyboard or joystick with no mouse options at all, indeed the play is obviously standardised from the 8-bits since the instructions for those machines are included in the manual.

The game comprises five stages which mainly consist of guiding Bond in a variety of vehicles or on foot through perilous situations and obtaining credits to repair other less fortunate vehicles which have passed through your hands. The first of the scenes comprises of a sort of demolition Outrun game, wherein it is your role to drive the Bond mobile through marauding pedestrians and manic drivers to reach the next stage. As with all the stages the graphics are smooth and the sound effects loud and percussive.

Gameplay is actually quite strong and the initial run is not as easy as it first appears. It is very necessary to learn the controls and handling quirks of both the car and the subsequent speedboat since they feature again later in the game. Indeed the manufacturers explain that this early level is there to help the player master the complexities of control.

Each part of the game has an effect on subsequent events, fail to obtain sufficient tokens and the repairs and upgrading to the Bond car will not be done and the scenes will become unavailable to you.

As in all these types of game each part seems as though it could be a fairly reasonable budget priced game, but for this game the parts do hang together well and give the feel of continuity often lacking in such an opus. I found the game fast and enjoyable, I also recognised bits of the film coming through quite clearly.

A good show by Domark and better than I expected!

FACTS

Title: THE SPY WHO LOVED ME
Publisher: Domark
Price: £24.99
Reviewer: Damon Howarth

SIGHT & SOUND

Excellent loading and ending music, colourful sprites and strong spot effects

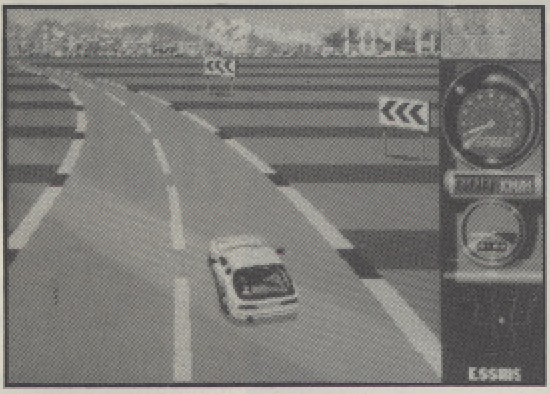
GAMEPLAY

Smooth and fast, perhaps occasionally difficult

VERDICT

Not bad at all, if you enjoy Domark Bond this is their best yet

TURBO CUP CHALLENGE



FACTS

Title: TURBO CUP CHALLENGE
Publisher: SMASH 16
Price: £4.99p
Reviewer: Damon Howarth

SIGHT & SOUND

Graphically well up to the standard of other comparable games noisily not as robust

GAMEPLAY

More than adequate, fairly fast and the other cars cheat!

VERDICT

An acceptable budget race game

Turbo Cup Challenge is another in a long road of car racing games seen from the perspective above and behind the car. The game, I am informed, was a full price French game and it does show a certain Gallic flair. The controls are fairly simple and I found the keyboard option far more preferable to the joystick. As with the vast majority of these games the options only include fast/slow left/right and it is perhaps disappointing to note that all gear changes are automatic. Then again it does allow the player to concentrate on the track.

Graphically the game is sound, the courses are well drawn and very smooth in their scrolling although the opposing cars seem to ignore the road surface with far more aplomb than the program allows the player. The cars also seem to have learnt their driving style in Paris since they seem to have an unstoppable urge to ram the player off the road in a hail of smoke and quality sprite work.

The races take place on four famous tracks and each race allows one lap of practice to obtain a grid position and a three lap race to lose your way and to allow your Porsche to be mercilessly bullied by all the other road users. While the action is fast and control smooth I was somewhat disappointed by the lack of tweaking abilities in the game, it is a very basic implementation of the style and while proving highly enjoyable I felt that the format could become somewhat tiresome after a long session of playing. I was also dismayed that the game had to resort to cheating in order prevent the player winning! While I fully recognise that one of the great arts in motor racing is the art of passing an opponent I find it hard to believe that the sports car fraternity are going to adopt driving tactics more often associated with the charioteers from Ben Hur in order to stop you being first past the post!

Having noted the basic and sparse game content of the software it does still offer a good budget price bargain and for any new to the motor racing circuit it will provide a few hours of fun if slipped into your Christmas stocking.

SHADOW OF THE BEAST



Shadow of the Beast has been long awaited by ST owners since its release on the Amiga over a year ago. The conversion apparently took over nine months to complete.

On loading the game you are greeted by some simply stunning graphics. Accompanying these gorgeous graphics is possibly the finest sound ever heard on the ST. The use of sampled sound in the music has to be heard to be believed!

You play the part of a character who was abducted as a child from his home and taken to the temple Necropolis of the Beast Lord. Here your body was slowly transformed into a creature of extreme power, agility, and strength. However, having now reached maturity, you begin to comprehend the awful truth and set about wreaking your revenge upon your evil masters. To do this you must enter the Shadow of the Beast.

The game takes on the basic form of an elaborate scrolling platform and ladder type arcade adventure. The "adventure" itself takes place within the domain of the Beast and will take your character to castles, strange levels beneath the forest, and to the bottom of a well, to name but a few places. As with practically all games of this type, on your travels you'll find various things to aid your cause. These items include keys, torches, and the like. Also, predictably there are a number of hostile creatures who are also creations of the Beast. The packaging boasts of "132 unique monsters", so there's plenty to keep you busy.

The graphics within the game itself are good and very professional looking, however they are overshadowed somewhat by the stunning loading graphics and some of the "stills" between levels.

I do have one major gripe - the scrolling is awful. Now I can appreciate that the boasted "13 levels of parallax scrolling" might pose a problem on the 520ST, but they could have done better surely!

In terms of playability the game is a real pig. Due to the game's immense size many of the different locations are loaded from disk each time you cross from one zone to another. This slows the action down considerably and spoils the gameplay but the presentation and quality of supporting graphics do make up for it.

FACTS

Title:	**SHADOW OF THE BEAST**
Publisher:	**Psygnosis**
Price:	**£24.99**
Reviewer:	**John Davison jnr**

SIGHT & SOUND

Graphically stunning, but the overall effect is marred by poor quality scrolling. The music is the best I've ever heard, but the spot effects are a bit dodgy

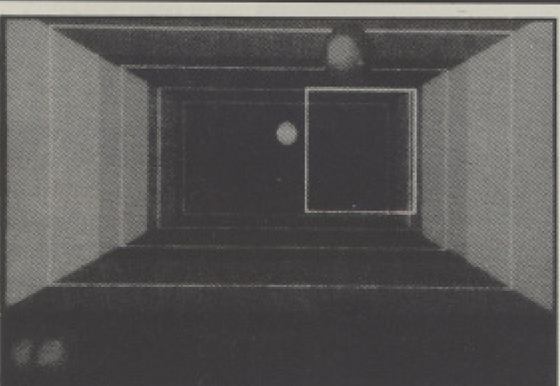
GAMEPLAY

I've played better! The system of loading and reloading spoils the flow of the game considerably

VERDICT

Like so many other games the very impressive presentation is at the expense of gameplay

THE LIGHT CORRIDOR



FACTS

Title:	**THE LIGHT CORRIDOR**
Publisher:	**Infogrames**
Price:	**£24.99**
Reviewer:	**John Sweeney**

SIGHT & SOUND

Simple but effective graphics with some great music and sound effects

GAMEPLAY

Cross between 3-D Breakout and Tennis with a few twists thrown in!

VERDICT

A must for all bouncing ball addicts - well worth buying - highly addictive!

Remember Breakout? Trying to keep a bouncing ball in the air with a tiny paddle? Remember how someone had the bright idea of vamping it up to take advantage of new technology and we got all those super games like Arkanoid and Impact? Amazing how a bit of thought can breathe new life into an old game, isn't it? Well, those French geniuses at Infogrames have done it again! What's the new twist? Now the ball bounces AWAY from you down a tunnel that disappears into the distance!

Of course it eventually hits an obstacle (which may be so far away that you can't see it!) and comes shooting back at an unexpected angle. You have to react VERY quickly to send it back down the tunnel with your large square transparent bat! Then you must follow it down the Light Corridor either slowly with separate clicks on the left button, fast by holding it down, or super-fast by holding down the right button!

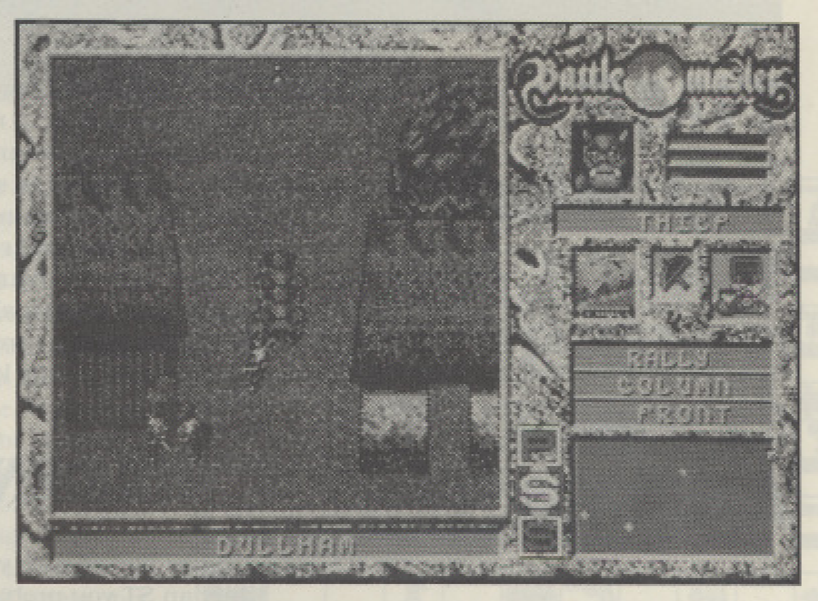
The simple obstacles are just panels of various sizes sticking out from the walls, floor and ceiling, some of them moving. If you get too close to those the ball bounces back so fast you have no chance of controlling it! Later you will come to strips which synchronise with the ball so that they keep volleying it back to you, enemy bats which you have to bat the ball past before you can continue, and moving force fields which send the ball all over the place!

To help you along the way there are tokens which can give you extra balls, sticky bats, double bats and so on but some of the tokens are nasty and shrink your bat!

There are 50 tunnels to get through, with a code number at the end of each so that you can restart anywhere you like. At the end of every fourth tunnel there is an extra problem to solve, like hitting a moving target a number of times, or working out which panels you have to hit while an arrow moves around the end wall!

As if this wasn't enough they also include a Corridor Editor so that you can create your own corridor! My only criticism is that you can finish all 50 in five or six hours using the codes to do them one at a time.

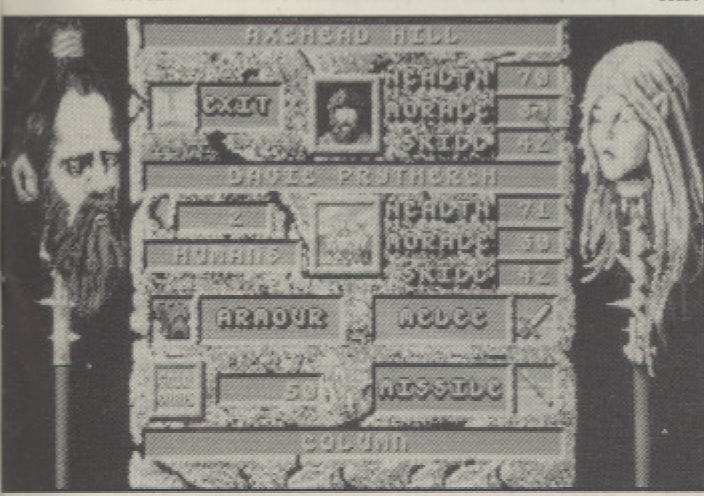
BATTLEMASTER



Are you familiar with magic? Capable of intelligent strategy? Ready to Buy, Loot and Barter with one single aim - to gather together a powerful force of men (or dwarves or elves or orcs!), win back the four kings' crowns and restore the world to everlasting peace?

Then this could be the game for you!

You start by choosing your race and profession, then set off to explore 50 scrolling scenarios in your quest to save the world. The main playing area is a bird's eye view (from 60 degrees) of wilderness, castles, villages, mines and dungeons which scroll smoothly in every direction. Each scenario has to be completed before you can access the world map and travel on to an adjacent scenario, searching for weapons, food, gold and magical artefacts and slaughtering everything that moves along the way. Movement and fighting are Gauntlet-style with the joystick - each scenario is basically a small arcade adventure - the complications arise because there are 50 of these scenarios linked together! Many scenarios are completely hostile and the only way through is to slaughter everything - you can neither move on to another scenario nor save your position until you have killed a high percentage of the local inhabitants! As long as you have saved earlier you can of course try an alternative route and come back to this scenario later!



Title:	**Battlemaster**
Publisher:	**PSS/Mirrorsoft**
Price:	**£24.99**
Reviewer:	**John Sweeney**

But mindless mayhem is not the only answer: many scenarios will offer you the chance to parley. If you choose this option you can buy food, weapons etc. from the locals and, if they are of your race, you can hire some mercenaries to strengthen your army. Once you have finished trading you can choose to slaughter them anyway or you can pay for passage through to the adjacent scenarios.

Once you have some troops they will fight as you do, in any formation you choose, though they are not always too bright and have a nasty habit of breaking ranks and getting themselves killed unless you RALLY them regularly! A small "radar" screen helps you find the enemy in each area. Most of the areas are fairly straightforward and you will not need to draw maps, just make notes of how to access hidden areas or solve puzzles and where to find the main objects.

There are dozens of objects to find, these fall into three categories, examples are: weapons, armour, food which you have to select in order to use; rings, gems which you just have to own - they automatically do their thing; specific scenario objects, e.g. poles, shovels, flowers, books - they are automatically used when you reach the right place on the screen.

Your information is a little limited in a couple of ways, for instance, how do you choose between Sulrandir's +40 Firehand Magic Wand which shoots fireballs and an Orcish +40 Skirmisher Wand which shoots poison gas? And you only get limited statistics about your troops - their average health and skill - so you don't know whether one is about to die or not, or which ones are the most skilful.

You can choose between mouse, keyboard or joystick - I found the joystick the best for fighting, but the mouse best for trading and manipulating the inventory. You have to use the spacebar or left mouse button to get to the control functions if you wish to rally your troops, change their formation, switch between sword and bow or eat some food to boost your hit points.

" highly addictive "

Battlemaster is a little annoying in a couple of ways: pits and rivers are instant death and it takes one and a half minutes to restore; you can't really see what is happening when there are lots of people in a close fight and one pixel can make the difference between whether you are hurting him or he is hurting you!

The mouse buttons are the opposite way round to the documentation. There are also a couple of bugs (e.g. book won't close pit in Wetwych) but nothing that will prevent you finishing the game I am told - I'm about a third of the way through at the moment! (It also wouldn't load on my ancient 520 with its separate single- sided diskette drive.)

So, fight your way through Axehead Hill, trade in Dulham, fight your way through Trollford and Ironhome to Maggot's Pit and see if you can save the world!

- ***GAMEPLAY*** *- Great fantasy warfare, lots of variety, highly addictive*
- ***SIGHT & SOUND*** *- Excellent graphics and añimation, the sounds are a little limited but adequate*
- ***VERDICT*** *- You should get many hours of entertainment as you try to raise your skills and build a competent army*

PD Paul Rixon's WORLD

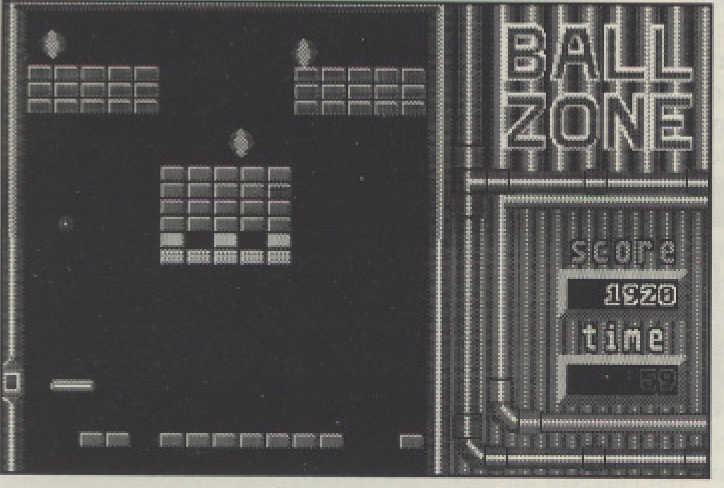
TIME TO PLAY - TOP CLASS GAMES COME THICK AND FAST

Commercial software houses are often criticised for over-pricing their products. Users may be prepared to dig deep into their wallets for a hefty applications package (the latest version of Protext weighs in at a whopping £150), but offered an arcade game with no guarantee as to the quality or lasting appeal, few would disagree that £20+ price tags seem a trifle excessive. The companies may argue that the price is a genuine reflection of the development, production and marketing costs, but users aren't easily convinced!

In April 1987 two enthusiastic ST programmers - Camy Maertens and Simon Rush - decided it was time to do something about the situation. They set up a company called Budgie UK whose aim was to produce quality Public Domain programs as a service to the ST community. A year later they launched the 'licenceware' concept - a mechanism by which sole licensed distributors pay royalties to Budgie UK on the disks sold, which are then shared by the programs' authors. Budgie UK have since grown into, what they claim is, the world's most prolific source of ST games. All programs from the Budgie stable (cage?) have several things in common. They are all of a very high quality, incredibly good value for money and are sold in the welcome absence of marketing hype or deceptive packaging. Even so, the company can reportedly boast yearly sales figures of up to ten thousand disks! So what do Budgie have on offer? Answer: games, games and more games! A recent summary put the number at around fifty entertainment titles in addition to several other items (mainly programming tools and demos) although the rapid release schedule means that this figure is bound to be inaccurate. Obviously there are far too many programs to review in one article so let's take a brief look at some of the best.

GOLDEN OLDIES

If you parted with your 8-bit micro to buy an ST you probably long for the excitement of those golden-oldies of yesteryear. How about a good old-fashioned game of Space Invaders? Some would say that the ST has never seen a decent version of this ever-popular classic but Budgie have put this right with **ACE INVADERS**. It's fast, colourful, exciting and just as addictive as the original. There's no need for me to mention, of course, that the game is all about zapping rows of terrifying aliens as they descend ever-more-rapidly towards your lunar base (oh well, too late!). Unlike some other Space Invaders games I could mention, this one features several nice tunes and a choice of either the author's original or enhanced versions. It could keep you occupied for hours but if you've still got an appetite for more then **BALLZONE** is the obvious solution. This one is a mouse-controlled Arkanoid clone which is arguably better than the real thing! As in any Breakout spin-off the aim is to annihilate rows of bricks by manoeuvring a bat so that a tiny destructive ball is prevented from escaping across the screen boundary. Some novelties in Ballzone include a reassuring row of base tiles below your bat's position which permit you to make the odd mistake and also a timer to keep you on your toes. Ballzone oozes with playability and the graphics are, needless to say, in a class above the rest. **MR DIG** is another favourite from the good ol' days - here you must guide the eponymous character through underground tunnels, and dig new ones, in order to collect a specified quota of cherries. Avoiding the baddies in hot pursuit isn't easy, let alone recovering the bonus crystals, but smart bombs are provided as a last resort. It's an excellent conversion (a superb demo of what you can do with STOS!), although in my opinion nothing really comes close to 'Mr Do' on the 8-bit Atari (murmurs of disagreement!). You'll also find an added bonus on this disk - **TANK BATTLE**, just as crude as the old VCS game!



THE WONDERFUL BALLZONE

TRIVIA TIME

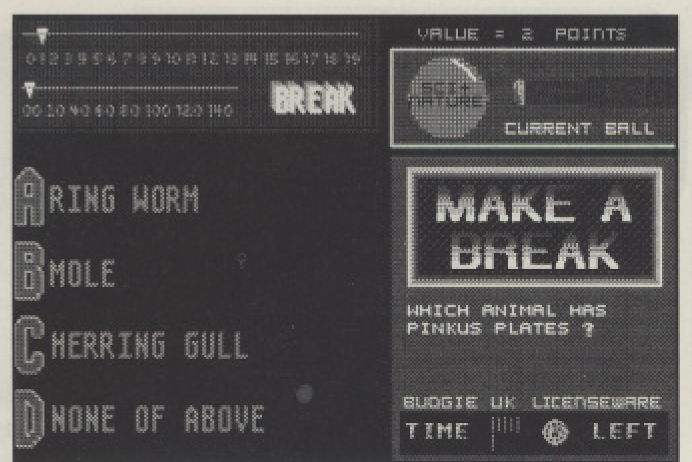
Shoot 'em ups not your scene? You'll be potty about **MAKE A BREAK**. It's a very professionally presented trivia quiz game which is loosely based on an old Radio One quiz once hosted by DLT. You are faced with a series of multiple-choice questions covering various topics such as the arts, science, music and sport with each correct answer allocated a specific number of points. These correspond to the values of snooker balls and if you guess(?) the right answer you're treated to an excellent audio/visual display of the ball being potted. The questions have been cunningly thought out to challenge even the most knowledgable of trivia aficionados - there's little doubt that the game's appeal will be long lasting as you endeavour to better your break.

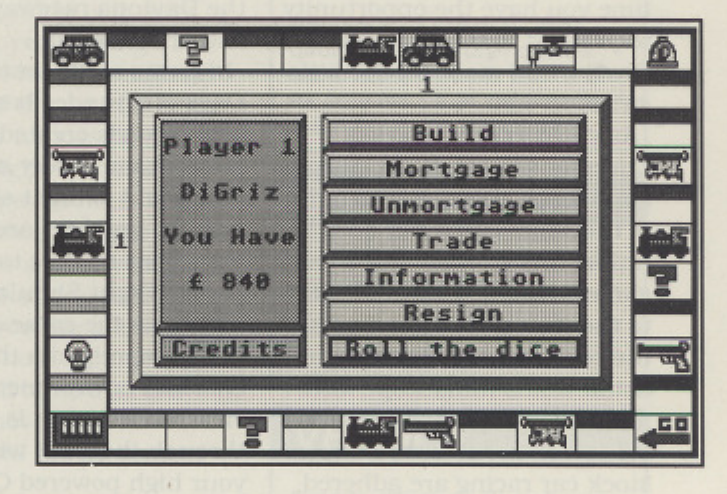
Ideal for those who'd prefer something more traditional, **SAFE AS HOUSES** can only be described as the 'ultimate' in computerised Monopoly. Up to eight players (either human or silicon!) can participate in fast, medium or slow modes on a board based on either Brit-

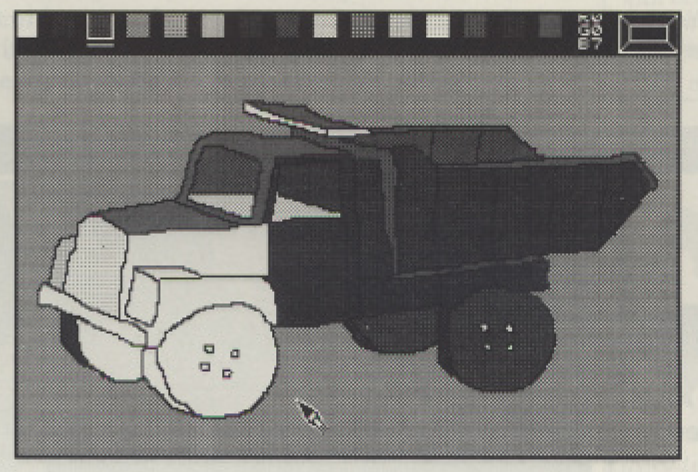
ish, Irish or American names. In case you've forgotten how to play the game, you can even sit back and watch the computer try to outwit itself! As with other Budgie games the excellent graphics are a major selling point, but Safe as Houses is also one of the few really addictive games in which you can involve the whole family - maybe even call around the neighbours!

If board games seem a bit too energetic and what you really want is to curl up in the armchair with a decent crossword, Budgie have just the thing! Simply pull the chair up to your ST and boot up **CROSSWORDS**. This one will run on both mono and colour systems and there's not a lot else that can be said except that the program offers twenty five different puzzles ranging from easy to medium difficulty. Words can be entered, erased or altered as required or if you are really stuck you can also call up the answers! If you have Fast Basic it's possible to create crosswords of your own but if not, don't worry as Budgie have promised more puzzles in the future.

Clearly it wouldn't be difficult to fill the entire magazine with reviews of Budgie Software but that wouldn't be too popular with the 8-bit-owning fraternity! I'm certain that we'll be discussing games again in future issues and Budgie UK is bound to feature prominently. In the meantime, why not check out the PAGE 6 catalog (an updated **PAGE 6 CATALOG DISK** is now available, priced at £1) and make a selection. You'll be impressed!







Top to Bottom

MAKE A BREAK the addictive trivia game

SAFE AS HOUSES - an excellent version of Monopoly

COLOUR BOOK - a delightful children's program

CHRISTMAS TIME

Once again, the festive season is almost upon us. Mince pies, mistletoe, carols and crackers - yes, it's time to eat, drink and be merry! How about setting the scene with a compilation of Christmas pictures and some great topical music? **CHRISTMAS TIME** is an apt name for a disk which is chock-a-block with excellent graphics on the Christmas theme, presented as a continuous slide show. Amaze the relatives with the power of your ST! If you're looking for something to keep the younger members of the family occupied after the presents have been opened, the toy batteries flattened and the crackers pulled, **COLOUR BOOK** could be the answer. The program on this disk is primarily intended for children up to the age of six and aims to stimulate artistic ability, in a similar way to the popular 'painting by numbers' exercises. Apart from eliminating the possibility of ink on the carpet, the advantage is that pictures can be modified, erased and re-painted as many times as required. The disk includes a collection of five outline drawings which can be 'painted' - however the user wishes - using the mouse to select from a bar of fifteen colours. A very user-friendly interface provides access to freehand and line-drawing facilities so that additional artwork can be created. It can then be saved to disk and retrieved at a later date. Colour Book is without doubt one of the best programs for young children in the Public Domain and is professionally designed so that all the features are extremely easy to use. There's only one small problem - you may become hooked yourself!

SIGNING OFF

I'd like to thank all those people who have written in with suggestions for future topics - but unfortunately, there haven't been any yet so instead I'll repeat the usual invitation to submit correspondence. If you have anything to say about Public Domain software, please write to PAGE 6 and let us know!

An exciting development on the commercial software front recently has been the release of the **TCB SOUND TRACKER** (at the Earls Court Computer Entertainment Show) by the exceptionally talented 'Care Bears' crew. The demo version is now available in the Public Domain and I must say that it looks to be a remarkable program in its own right. The fully-featured package must be incredible! More details next issue when the column will have a musical flavour. Until then, all that remains for me to do is to wish all Atari enthusiasts a very Happy Christmas and a prosperous 1991. See you next year!-

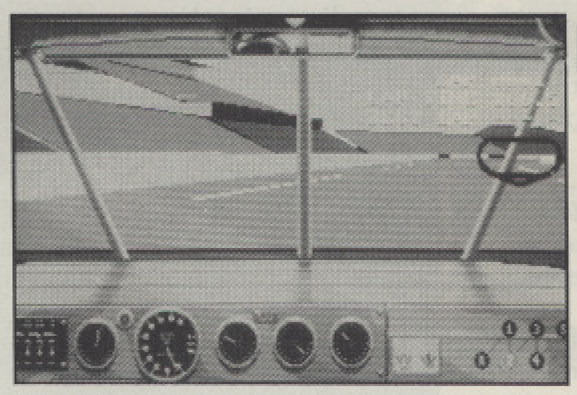
HOW TO GET THEM

All of the disks referred to in this article are available from the PAGE 6 PD library. Each has a unique reference number which you should use when ordering or enquiring about the software. Please contact PAGE 6 if you don't have a copy of their Accessory Shop leaflets and check the system requirements for each disk. THE PAGE 6 CATALOG DISK containing a full list of disk names and contents is available from the library, priced at £1. The disks mentioned in this article are:

ST11 - CHRISTMAS TIME
ST126 - BALLZONE
ST159 - ACE INVADERS
ST184 - MAKE A BREAK
ST269 - MR DIG
ST274 - SAFE AS HOUSES
ST290 - COLOUR BOOK
ST305 - CROSSWORDS
ST337 - TCB SOUNDTRACKER

Prices for standard disks are £2.95 each or £2.50 each for ten or more
Write to PAGE 6, P.O.Box 54, Stafford, ST16 1DR
Telephone 0785 213928 or FAX 0785 54355 with credit card orders

DAYS OF THUNDER



Does the world really need another 'block-buster movie' computer game tie-in? They are often not terribly good and often have very little to do with the film apart from containing the right characters. Well, this time you have the opportunity to pretend that you're Tom Cruise, and make all the little girlies swoon!

As you'd expect, Days of Thunder is a stock car racing simulation based on the film of the same name but does it, unlike many other 'film' games, bear any resembelence to the movie? To my surprise, the realism and attention to detail which Mindscape have put into this game is quite astonishing! All of the rules of stock car racing are adhered to and the overall 'feel' of the game is quite realistic. Your main aim in the game is to compete throughout the racing season, starting first at Daytona raceway and working up through the various 'rounds' which eventually lead to the Championship race. This takes place at the Daytona raceway at the end of the season.

In terms of presentation, Days of Thunder has been very cleverly created. The style of the game is very much in the mould of flight simulators and the graphics are very reminiscent in style to such titles as Flight Simulator II and Jet. Thus the game can realistically represent a three dimensional environment. Your view of the action is mainly through the front window of your high powered Chevrolet stock car however, just as with the various flight simulators available at the moment, you have the choice of viewing the race from a variety of vantage points. These enable you to watch the race from the stadium, from an airship, and through the different windows of the car. This is a very original approach to a racing game and the only other game I can think of which employs the same method of representation is Hard Drivin', now available as part of Domark's 'TNT' games compilation.

The game does suffer somewhat in terms of control, as in some places the reaction of the joystick is a little sluggish but this does not detract from the game overall as it is surprisingly playable.

Compared to most other film tie-in games this one is particularly impressive.

FACTS

Title: DAYS OF THUNDER
Publisher: Mindscape
Price: £24.99
Reviewer: John Davison jnr

SIGHT & SOUND

The flight simulator-like graphics give the game a very distinctive look, sound is adequate

GAMEPLAY

Generally quite playable, but it does suffer in some places from poor response

VERDICT

Surprisingly impressive

GUARDIAN

FACTS

Title: GUARDIAN ANGEL
Publisher: Code Masters
Price: £6.99
Reviewer: Damon Howarth

SIGHT & SOUND

The game is very strong in both areas and it's playability enhanced by them

GAMEPLAY

Fast and furious, tremendous fun to play and easy to control

VERDICT

Great martial art game, worth playing

Guardian Angel is yet another budget offering and this time as the name may suggest the players takes the part of one of those vigilantes who visited from the U.S.A. a couple of years ago. It is the players role to rid the streets of muggers and maniacs (and one can't help wondering cynically, other Guardian Angels). I worried about the quality of this product before I even loaded since the disk proclaims it is made for Commodore Atari ST!

The game is a joystick controlled martial arts beat em up with all the usual kicks and punches available. As a format it is very reminiscent of Vigilante in so far as the Angel must march down several backdrops being attacked by various oriental sailors and kick boxers and several Occidental knife wielders and bar toters. This is not to mention the various fork lift drivers who attempt to flatten the hero. Bonus points are scored for completing the screen inside a time limit and this is comprised of people incapacitated and time left on the clock. The game neglects to inform the player that if they rest in between encounters their energy level will restore and thus they may not die from severe damage if a break in the action can be found long enough.

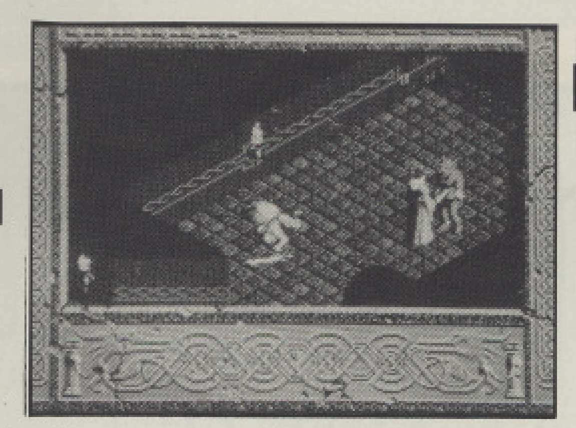
The sprites are big and cartoon like with a cleft chinned hero doing your fighting for you. The action is smooth and very fast on occasions a bit too fast. There is plenty of colour splashed around the screen and the game feels as though it is an arcade conversion. The graphics certainly do deserve a special mention since they are both expertly crafted and most entertaining to see.

The sound effects sound reassuringly like a Jackie Chan movie although I am not too sure that the bully with a cosh should not be saying "Biff! Biff!" as he slaps our hero around the back of the head!

There may be those of a delicate disposition who will find some parts slightly gory but they appear to have been created in best Tom and Jerry tradition and would hardly even merit a 12 certificate in the cinema.

I enjoyed this and recommend the game to beat em up fans.

THE IMMORTAL



Many years have passed since you last saw Mordamir, the old wizard who took you in and patiently taught you the ways of the sorcerer. He was your master and your mentor, your guide down the treacherous path of wizardry, your friend. Until now you assumed that he was dead but a few nights ago he called you in a dream. You awoke feeling that Mordamir still lived, trapped in a bottomless cavern.

You set off on your mission to find your old friend and master, to unravel the secrets of the Immortal. You must enter the ancient city of Erinoch, a city destroyed by the dragon's fire over 1000 years ago. From here you must go to the labyrinth which lies below the city, something which Mordamir used to speak of often. Within the labyrinth you will find many adversaries and many puzzles and traps which will hinder your progress.

All of the action taking place in this immense arcade adventure is viewed as though looking down on a room from above the corner. It gives the room a three dimensional look, appearing in a diamond shape on your screen. You play the part of an old wizard who must move around the vast labyrinth of rooms, solving puzzles and defeating many of the hostile characters which you encounter.

Graphically the game is superb, the three dimensional view being very reminiscent of some very early classic games on the 8-bit computers. The concept and graphics have, however, come a long way since then! The animation of the characters is especially impressive as they swiftly and smoothly move around. Shadows flicker, gems sparkle and fire crackles, all giving the game a tremendous quality.

I truly enjoyed playing The Immortal. It isn't too difficult and none of the puzzles seem to be totally impossible to solve. The fight scenes are also worthy of special note. When you encounter a hostile creature such as a troll, you must defeat it in hand to hand combat before you are allowed to continue. These fight scenes are very well done and the variety of moves you have at your disposal are all easy to initiate.

There's only one set back - The Immortal will only run on a machine with a megabyte of memory. A pity.

FACTS

Title: **THE IMMORTAL**
Publisher: **Electronic Arts**
Price: **£24.99**
Reviewer: **John Davison jnr**

SIGHT & SOUND

The graphics are of superior quality, and the animation is wonderfully smooth. Sound is far from the usual, adding considerably to the atmosphere

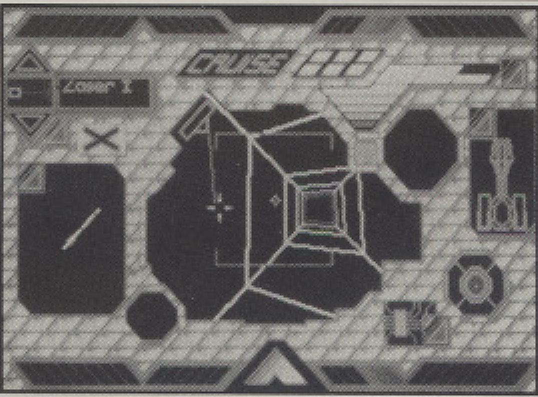
GAMEPLAY

Very enjoyable, a challenge without being frustrating

VERDICT

Superb, although it's a shame that not everyone can experience it due its size. Note that it requires 1MB and double sided drive

MAGIC FLY



FACTS

Title: **MAGIC FLY**
Publisher: **Electronic Arts**
Price: **£24.95**
Reviewer: **Damon Howarth**

SIGHT & SOUND

Sonically strong and graphically excellent

GAMEPLAY

A shade complex but once mastered very smooth and fast

VERDICT

Buy it now!

Magic Fly has a pedigree that should guarantee excellence, conceived and written by two famous Lancashire lads it falls in the 3D shoot em up genre pioneered by Elite.

The concept is that a new space fighter the "Magic Fly" of the title has to be used to conquer a hollow metal planetoid and complete five tasks. These include mapping and scanning functions together with a couple of seek and destroy missions and finally destroying the asteroid. The mission is fairly complex but then so too is the craft and its variety of equipment.

The control screen has plenty of action points and needs the mouse to activate much of the data, flight control is best done from the keyboard even though the joystick option is possible. It takes a well filled twenty seven page manual to detail all the features and techniques of the craft and any attempt to describe them briefly would trivialise a superb piece of games software.

Graphically the game is a combination of solid and wire frame 3D which seem to borrow their roots from Elite, and although the game is not excessively colourful or strong in sound effects it provides the opportunity to fine tune armament and ships systems in revolving CAD style displays. Flying and combat modes are fast and exciting once the various control modes are understood. It is perhaps unfortunate there is no opportunity to experiment with the crafts handling before the mission must be joined, but that can add to the pressure and the excitement of the game.

The game comes on two disks and the system allows for them to be copied on to whatever set up suits the individual's preference. There are aslo extensive save facilities and manages to allow your craft an auto docking mode for those essential repairs.

This is a game that a short review cannot do justice to, I found it had a long term absorbing effect and it would certainly rate as one of my favourite games of this year. It has a strong tactical element and thus saves itself from being just another shoot em up.

A game that could achieve the same sort of status as Elite.

PeterHickman's

STOS COLUMN

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NEWS OF ... BETTER MUSIC

A NEW SQUASHER ...

AND ... A SOUND TO GRAPHICS ROUTINE

"Twas the night before Sunday and all was still, not a mouse, not a joystick stirred. I switched on the STE to communicate with a couple of Bulletin Boards and to my amazement the computer did nothing, no power light, no disk drive whirr - it was dead (gasps of shock and horror!)".

No that wasn't an extract from my latest attempt at hitting the best sellers list, it was all true! For the last four weeks I have been operating without an Atari ST, which of course means that I am four weeks behind on answering all your letters, contacting all the people who appeared in the last column, judging the STOS competition (yes, I really am jinxed) and finally I haven't had a chance to send Page 6 my latest lot of STOS PD software. I have had my Amiga to work with (so I haven't starved or stagnated) but I still haven't found any decent word processors on that computer at all. Still I have the good old STE back now (thanks to SDL, the trade arm of the Silica Shop), but I am short on time so this column may be slightly smaller than usual.

QUALITY MUSIC

Talking of the Amiga, you may (or may not) know that even if it doesn't have our wonderful Midi ports it does have a superb sound chip and has given rise to an awfully large collection of musical masterpieces created with various programs. What has that got to do with us? Well also on the Amiga is that wonderful language AMOS which just happens to support such tunes (you have to convert them to fit into an AMOS music bank, but that's no real trouble). Anyway Francois Lionet has recently been working on a program that converts AMOS music banks to a format which STOS can use (with the help of a new extension he is writing), details are still sketchy but doesn't it sound excellent?

WHAT REVIEWS?

I did have a couple of reviews lined up for this issue, the first was a new (well nearly) budget release by Atlantis Software, the game is Skystrike Plus which I originally reviewed quite a while ago, I'm not sure of the price or what sort of packaging has been done 'cos they ain't sent me a copy yet (am I using too much slang? Cor blimey guvnor where's me jellied eels, running up them apples and pears can really make yer pins feel knackered!). The second release is a new art package by Terry Mancey and Kevin Hearson, but this is currently being revamped a tiny bit so we will leave that for next time (it should be out by the time your read this).

On the subject of Terry Mancey (smooth links this issue, huh?) he has been working hard on a new disk based magazine for programmers called ST PROGRAMMER. At the time of writing I have yet to see an issue but he promises lots of STOS programs so it may be worth a look. You can contact Terry through Stallion Software on 0752 500312 (that's in Devon for all you phone freaks). We will have a Machine Code routine from Terry in the next issue, I cannot tell you what it is 'cos it's a surprise but tune in next time for the best thing STOS owners have had since STOS Squasher.

CUE SQUASHER

As you are all aware STOS Squasher (this is really good I think I'm on a roll here!) is the most essential thing any STOS owner should have, and if you came along to the European Computer Entertainment Show you would have been lucky enough to see it's authors, Darren Ithell and Bobby Earl. Darren has just sent me a lovely little routine which

continued on page 72

```
10 rem *********************
20 rem * SOUND_O version 2 *
30 rem *                   *
40 rem * The SOUND mOnitor *
50 rem *                   *
60 rem * By Daniel Spooner *
70 rem *********************
80 rem
90 rem '90
100 rem
110 rem ***> LOAD MUSIC FILE
120 rem
130 F$=file select$("*.MBK","  CHOOSE MUSIC FILE TO PLAY! ")
140 if F$="" then end
150 erase 3 : load F$,3
160 rem
170 rem ***> CHECK MUSIC AND GET NUMBER
180 rem
190 if leek(start(3))<>$13490157 then print : print "This in not a MUSIC bank!"
: print : print : end
200 key off : curs off : hide on : mode 0
210 home
220 input "Enter Music To Play :";MUS
230 on error goto 590
240 music MUS : music off
250 on error goto 0 : hide on : palette $0,$0
260 rem
270 rem ***> SET UP THE SCREEN
280 rem
290 clw : scroll off : locate 0,0 : auto back off : under on : centre "SOUND_O"
: under off
300 locate 0,2 : centre "by D.Spooner in STOS!"
310 ink 1 : box 0,10 to 40,187 : locate 0,24 : print "1 2 3 VOLUME"
320 box 65,30 to 300,180 : locate 20,23 : print "WAVE FORMS" : locate 7,6 :
print "1" : locate 7,12 : print "2" : locate 7,18 : print "3"
330 def scroll 1,80,31 to 303,179,-2,0 : palette $0,$777,$700,$70,$7
340 rem
350 rem ***> MAIN LOOP
360 rem
370 music MUS : X=psg(0)/2 : plot 208,30+X : repeat
380 rem
390 rem ***> WAVE FORM READINGS
400 rem
410 X1=psg(0)/8 : X2=psg(2)/8 : X3=psg(4)/8
420 ink 1 : draw 270,30+OLDX1 to 270,30+X1 : ink 2 : draw 270,80+OLDX2 to
270,80+X2 : ink 3 : draw 270,130+OLDX3 to 270,130+X3
430 OLDX1=X1 : OLDX2=X2 : OLDX3=X3
440 scroll 1
450 rem
460 rem ***> VOLUME READINGS
470 rem
480 X4=psg(8)*10 : X5=psg(9)*10 : X6=psg(10)*10
490 ink 0 : draw 8,187-OLDX4 to 8,187
500 ink 1 : draw 8,187-X4 to 8,187 : OLDX4=X4
510 ink 0 : draw 16,187-OLDX5 to 16,187
520 ink 2 : draw 16,187-X5 to 16,187 : OLDX5=X5
530 ink 0 : draw 24,187-OLDX6 to 24,187
540 ink 3 : draw 24,187-X6 to 24,187 : OLDX6=X6
550 until inkey$<>"" : default : end
560 rem
570 ***>error
580 rem
590 print : print "---> Music Not Defined!"
600 print
610 resume 220
```

Write to Peter Hickman at
36 CLEVERLEY ESTATE
WORMHOLT ROAD
LONDON
W12 OLX

is compatible with the Unsquash command in Squasher and packs samples with a much better compression ratio than the ordinary Squash command. I'm not sure what is going to be done with it at the moment, so I'll let you know next time (it's going to be really busy in the next issue!).

JUST ONE PROGRAM

Before we look at the only program for this issue (sorry but I have deadlines to adhere to), Richard - I'm not a cat beater - Vanner (Mandarin's Development Manager) has reminded me to tell you about the new STOS upgrade which is now available, it adds compatibility for the very latest TOS revision (1.62 I believe). It also means that for those of us who have written PD software and have a conscience will now go and re-compile and re-squash our programs (sob, sob, another two hours gone).

Ok the only program for this issue is from Daniel Spooner, a regular contributor to this column. Daniel has come up with a way of producing a VU-Meter type display from a piece of STOS music using the PSG() function. It's quite short and really easy to follow so here goes...

HOW IT WORKS

Lines 10-100 - tell you that Daniel is a pretty amazing person

Lines 110-150 - load a piece of music into the music bank, I used the music from the STOS accessories disk when I first tried this program

Line 190 - looks at the beginning of bank 3 for the first four bytes (a longword), if the number found is different to $13490157 then the bank which has been loaded is not a piece of STOS music

Lines 220-250 - let you pick the piece of music you wish to play

Lines 270-340 - set up the initial screen display, including a scroll zone for the waveform generation (yep it does that too!)

Line 410 - passes the waveform information into the variables X1, X2 and X3

Line 420 - draws the current part of the waveforms and scrolls the zone

Line 480 - passes the volume of each sound channel into the variables X4, X5 and X6

Lines 490-550 - generate bars on the screen depending on the volume of the channel

Ok what do you think, neat huh?

HOW ABOUT ADDING MORE?

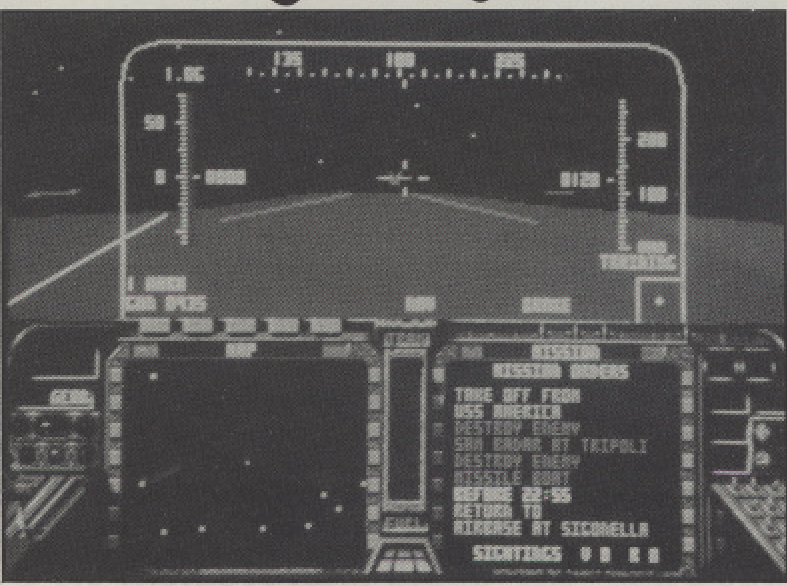
Now you know how to find out the volume of a channel how about writing a similar routine that uses dancing sprites? Or perhaps some form of light show that increases the brightness of the colours displayed if the music gets louder?

NEXT TIME

Oh well, I'll have to go now. Before I do let me remind you about a couple of events coming up, first is the Computer Shopper Show (6th-9th of December). Mandarin have their usual mega stand with loud Stereo, gigantic monitor and loadsa seats. I'll be there, and so will Aaron Fothergill showing off lots of new stuff. Richard Vanner says there will be demonstrations of STOS/AMOS 3D as well as Fun School 3 and a new program which could set the educational world alight (I signed a non-disclosure agreement so I cannot say more than that!). Also coming up is the third 16 Bit Computer Fair (4th-6th of January 1991), I'm not sure about Mandarin but I'm sure you will spot me hanging around anybody selling STOS stuff. The last 16 Bit Fair was a big improvement on the first one, with a lot of the larger companies (such as Psygnosis) exhibiting. See ya there folks.

FLIGHT SIMULATION

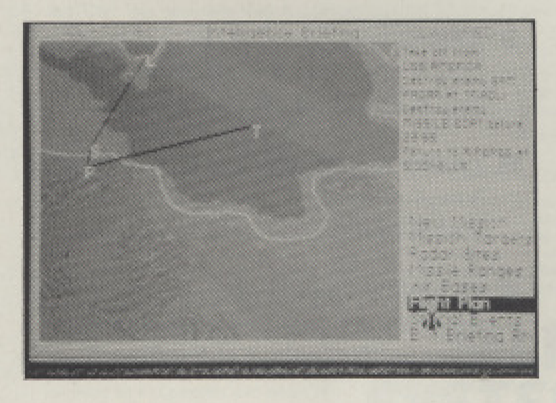
F-19 STEALTH FIGHTER



I've always had a soft spot for Microprose flight simulations, so I was delighted to receive F19 Stealth Fighter for review. It seems expensive at £29.95, but after seeing the contents of its enormous box, the price seems reasonably justified.

The package contains three single sided disks; two large sheets of full colour maps showing the operational areas; a large keyboard overlay to help with the simulator's complex controls; a technical supplement showing ST specific details; and finally, a superbly produced 192 page instruction manual. This really is excellent - as well as the basic operating instructions it's stuffed full of hints and tips, and uses lots of pictures and diagrams.

The simulation structure is similar to Spectrum Holobyte's Falcon and Digital Integration's F16 if you've seen these, in that you're taken through mission selection, pre-flight briefings, and armament selection stages before you get to fly. You can also chose training or operational mode; air-to-air or ground strike missions; cold war, limited war, or conventional war scenarios; operational area - large regions in Libya, Persian Gulf, North Cape, or Central Europe; and the skill level of your opponents. The program tracks your performance, awarding points and medals for each mission depending on its difficulty and your achievement. A separate 'roster disk' is used to record your career progress from mission to mission. Promotion up through the ranks from 2nd Lieutenant to Brigadier General depends on experience gained and results achieved.



AVOID THE RADAR

There are lots of missions, each having a primary and secondary objective. These involve you navigating to, identifying, and dealing with the stated targets, before finding and landing at a friendly base. F19 differs from other simulations in that you have to attempt this without being detected by enemy radar (or eyes!). You're helped by the 'stealth' features incorporated into your aircraft's design. These include a low radar reflectivity profile and construction, and reliance on passive (usually optical) methods of target identification, navigation, etc. Your "electro-magnetic visibility" to the enemy is shown on an instrument in the cockpit, and the idea is to fly the aircraft in a way which keeps it as low as possible. The same instrument shows the power of enemy radars currently searching for you, so it's easy to determine how visible you are to them.

Missions start from either an aircraft carrier or land base. These are busy places, as there are usually plenty of other aircraft landing and taking off. You have to fit into the traffic pattern, just like in real life!

Primary aircraft flight controls are via mouse, keyboard, or joystick, with all the secondary controls on the keyboard. This is where that keyboard template proves invaluable. Response to flight controls is quite good - it's not in the Flight Simulator II league, but seems better than most. I found it comfortable to fly, but too easy to stall, particularly in tight turns, so you have to watch this. Not unexpectedly, landing after a mission is the hardest part to master, although it's possible to use "no crash" or "easy landings" options until you get the hang of things.

Your normal view of the world is through the cockpit canopy, but it's possible to change this. You can have a full screen view straight ahead, either side, or behind you; 'slot', 'chase plane', or side view of your aircraft; tactical views which show you and your airborne opponent, either from your point of view or your opponent's; and finally a 'missile's-eye-view' as it homes on its target. There's a complete lack of traditional flight instrumentation, with everything displayed either via the usual Head Up Display projected onto the windscreen, or on multi-purpose display screens on the cockpit panel.

RANDOM CLOUDS

Scenery detail is excellent, with lots of rivers, lakes, mountains, roads, and civilian buildings, as well as enemy installations to see. Seascapes have interesting detail too, in the form of a wide variety of ships. The sky is thick with air traffic, both civil and military of friendly and enemy persuasions. Just be careful you know what you're shooting at! Another unusual touch is the use of random partial cloud cover, something not often seen in flight simulations.

As expected, the combat aspects are first rate, particularly the air-to-air scenarios. At higher difficulty levels you're up against cunning ace pilots, expert radar operators, and missile crews with VERY itchy trigger fingers, and you're lucky to finish each mission alive. Interest is kept high by the wide range of enemy aircraft types from An-72 transports, through Il-76 airborne early warning aircraft, to the incredible MiG-29 fighter. The enemy also uses some American aircraft, such as Phantoms and Tigers, just to keep you on your toes!

This program offers something for everyone, requiring thought and skill as well as supplying action and excitement. It's got excellent graphics and animation, appropriate sound, believable (if not totally accurate) simulation aspects, and in use it has the depth, challenge, and addictiveness normally associated with top class games. I can highly recommend it.

Title:	**F-19 STEALTH FIGHTER**
Publisher:	**Microprose**
PRICE:	**£29.95**
Reviewer:	**John S Davison**

THE FINAL BATTLE

The long awaited sequel to the excellent graphics adventure "The Legend of the Sword" has finally arrived and looks very good! Whereas Legend was basically a text adventure which had lots of graphics features, The Final Battle has followed the current trend of using the mouse for everything. Most of the screen is taken up by a very detailed view of the current location. There is a small text window below (which can be scrolled up and down), and lots of icons around the edges to allow you to issue commands.

There is no animation, but the graphics are excellent and cover all aspects of the game, for example to attack an enemy you click on the ATTACK icon; click on the enemy in the main window; it displays your weapons; choose one and a full screen body is displayed for you to target your attack. If you select the MAP icon an excellent scrolling map of all the areas you have visited is displayed and you can return to any area by just pointing at the map and selecting the GOTO icon.

The story carries on from Legend - the evil wizard Suzar has escaped and killed most of your party in an ambush. You awaken in a prison alone and unarmed. You must escape, rescue whoever's still alive, and explore the countryside for 6 crystals of power and a route to Suzar's castle so that you can destroy him!

The game covers over 130 locations each with its own 3D picture and well over a hundred items you can manipulate (not all of which are useful - don't try and carry everything!). You can examine nearly everything in the pictures, including little black dots which turn out to be spiders! You need to find four companions if you wish to succeed as each of them has unique statistics (e.g. strength, archery, thievery). You must use the right one for tasks such as shooting arrows and examining walls or you won't make a lot of progress! One character can throw spells (e.g. healing, detect spirits) provided he is kept well fed and in good health! Time passes during the game and the weather changes - these are all taken into account, for example you tend to miss with your arrows if it is windy! All in all there is an incredible amount of detail in The Final Battle!



The main icons (LOOK, LISTEN, WAIT, THROW, EAT, ATTACK/CAST, TALK, RUN) are all fairly obvious - but check the manual for specials, e.g. right click on LOOK allows you to look in a direction; right click on an object is LOOK INSIDE/ACCESS CONTENTS. There is one other very important icon: OPERATE, which allows you to "use" either one item or two items together; for a single item just double click on it. OPERATE means all sorts of things: remove, light, clean, open, unlock, wear, smell, unwind, push, search, touch with (a strange one that - what you have to touch is not visible so you just double click on the item you want to touch it with!), etc. - if in doubt double click on everything and see what happens! But beware - it is not entirely consistent - you can break one item by double clicking on it but another you have to, to attack!



Title:	**THE FINAL BATTLE**
Publisher:	**PSS/Mirrorsoft**
Price:	**£24.99**
Reviewer:	**John Sweeney**

There aren't too many hard puzzles to solve in the Final Battle, and the simple interfaces will make it accessible to a lot of people. It is a little obscure in a couple of places though, so I suspect the Helplines will be buzzing over this one for some time! One minor criticism is that some of the commands are a little clumsy and each click is accompanied by a couple of seconds pause as the program adjusts the graphics, so for example "JACK, GIVE THE APPLE AND THE ORANGE TO PAGAN" takes 6 clicks plus 3 click 'n' drags - 25 seconds (in contrast Dungeon-Master takes only 6 seconds, and I can type the command in well under 10 seconds), so people who prefer to type their commands may find all this a little tedious! N.B. it will take even longer if you don't realise that you can drag items to the portraits - a fact not mentioned in the manual!

"a big improvement on Legend of The Sword"

You can save to diskette or RAM but a late bug means that you should precede ALL file names by "b:".There are a couple of other minor bugs, but nothing that will stop you finishing the game - to avoid the worst of them double click on the big basket to make it go up.

- ***GAMEPLAY*** *- Good WIMP adventure (that's "Window, Icon, Mouse, Point" just in case you didn't know!)*
- ***SIGHT & SOUND*** *- excellent graphics, covering every aspect of the game (no sound at all)*
- ***VERDICT*** *- Excellent if you like graphics adventures, a big improvement on the Legend of the Sword*

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SPECIFICATION

- ★ *Processor:* Intel 80C88 at 4.9152Mhz.
- ★ *Operating System:* Compatible with MS-DOS 2.11.
- ★ *Internal ROM:* 256K containing BIOS, operating system and applications suite.
- ★ *RAM:* 128K with an internal RAM disk, configurable from 8K. Externally expandable to 640K RAM.
- ★ *Keyboard:* 63 keys, QWERTY, IBM PC BIOS compatible. Buried numeric pad and function keys. Optional key click.
- ★ *Character Set:* Extended IBM ASCII (255 characters).
- ★ *Mass storage:* credit card sized memory cards (32K or 64K or 128K RAM).
- ★ *Display:* Graphics LCD, supertwist technology, MDA compatible, 40 columns x 8 lines, 240 x 64 pixels (with the option to window a full 80 x 25 character display). Keyboard controlled contrast.
- ★ *Peripherals:* 60 pin expansion BUS to take serial and parallel ports and memory expansion units.
- ★ *Size:* 8" x 4" x 1" (200mm x 105mm x 29mm).
- ★ *Weight:* 495 grammes (with batteries).
- ★ *Applications:* calendar and diary, address and phone book, Lotus 1-2-3 compatible spreadsheet, text processor, communications software.

COMING SOON!

In addition to the excellent software built-in to the Portfolio Free of Charge (see right), other software and peripheral products, such as the sophisticated Pocket Finance package and serial/centronics interfaces are available. And it doesn't stop there. Many manufacturers have recognised the potential of the Portfolio and have already started to design new peripherals and software. Products currently under development include: Serial interface with built in mini modem, Apple Macintosh interface, business, utility and programming software plus a range of adventure and battle strategy games. For further free details on the Portfolio range, fill in the coupon below and return it to Silica Systems now.

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Portfolio has a complete address book facility that allows you to store hundreds of addresses and phone numbers. And, at the touch of a button, you can retrieve any one of them, or search for a specific grouping, such as "all Italian restaurants". And, when you are ready to book your table, hold your Portfolio to your telephone mouthpiece and use its special built-in tone dialler to dial the number for you.

TEXT PROCESSOR

The Portfolio's built-in text processor program includes word wrap, line and column count, string search, in fact most of the functions you would find in a word processor. It handles printer and word processor control codes and allows easy transfer of files between Portfolio and your desktop PC.

SPREADSHEET

For real calculating power, Portfolio has a Lotus 1-2-3 compatible spreadsheet built-in. It has 127 columns x 225 rows and reads/writes Lotus V1.0 and V2.01 files, so you can transfer data to and from Lotus 1-2-3 on your desktop PC. The Portfolio's 256K ROM includes MS-DOS and PC BIOS compatible systems software.



MEMORY CARDS

Portfolio can store and retrieve data and programs from its own RAM, or from small credit card size memory cards, that slot into its built-in card drive. The cards are available in three sizes, 32K, 64K and 128K, so you can carry a library of data in your pocket. The card drive also accepts ROM cards, which can contain commercial or custom software.



POWER SUPPLY

Portfolio is powered by three AA batteries which will run for up to six weeks with normal use, or from the mains using an adaptor. All the peripherals take their power from the Portfolio, so no extra batteries or adaptors are required. A 'battery-low' warning and memory back-up ensure that information is not lost when the batteries are changed.



INTERFACES & PERIPHERALS

Portfolio can communicate with other computers and supports a growing range of peripherals via a built-in 60 pin bus connector. Peripherals available include serial and parallel interfaces and memory expanders (to 640K). You can also add a card drive to your desktop PC, to enable it to read/write to Portfolio's cards.

SILICA SYSTEMS OFFER YOU

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